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THE TREATMENT OF VALVULAR DISEASES OF THE HEART.[1]

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This paper is intended to deal with matters connected purely with the treatment of valvular diseases of the heart. In it I desire to record some opinions formed by experience; to trace lines of procedure; to see in how far new therapeutic agents have added to our resources; and to try to make out in what direction the hand of progress points.

Corvisart's famous quotation as a motto for his classical treatise on diseases of the heart, *Hæret lateri lethalis arundo*, represents the thought for a long time prevailing, and still largely adhered to, certainly as regards valvular affections, that nothing can be done for such grave conditions: the fatal arrow must stay implanted until death loosens it. Side by side with this opinion has been, of late years, the doctrine strongly urged that treatment should be based on the particular mischief at valves and valve openings and its supposed necessary consequences on the walls, and rules are laid down for the use or avoidance of remedies in accordance with these preconceived ideas, and with the special name the valvular disease bears. Thus, in mitral regurgitation, as well as, and even more markedly, in mitral narrowing, digitalis is to be employed to increase the propelling power of the heart; in aortic regurgitation, with its large left ventricle, this drug is to be avoided—may be even dangerous; and, as the resulting hypertrophy is mostly

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sufficient, digitalis is of little or no use in aortic narrowing. In tricuspid regurgitation we are taught by some never to omit its use, whatever else we do; by others, that as there is no compensatory muscular change, it is impossible that it can be of any service.

Now, from these doctrines and the suppositions on which they are based, I dissent. I think they only embody half truths, which, rigidly applied, will lead to wrong practice. I believe they ought to be taken simply as very general statements concerning the particular tendency of each valve disease, but not be the guide in an individual case without an accurate study of the special features of that case. I hold, then, that the precise valve affected is not, with our present resources, the keynote to the treatment of valvular heart disease. Much more important is it to regard the state of the muscular fibre; the size of the cavities; the condition of the arteries, veins, and capillary system; the secondary results of the cardiac lesion; the control of the nervous system. Important, too, it is to bear in mind the cause of the malady. Holding these views and largely based on them, I advance these propositions for the management of cases of valvular disease of the heart. We are to take as indications:

1. The state of the heart-muscle and of the cavities.
2. The rhythm of the heart-action.
3. The condition of the arteries and veins and of the capillary system.
4. The probable length of existence of the malady, and its likely cause.
5. The general health.
6. The secondary results of the cardiac affection.

It is on these considerations that the treatment of valvular affections turns, and the first of them is, from a practical point of view, the most important. It influences action in diverse ways. Thus, if we have a case with heart muscle which has increased in size simply to the extent necessary to overcome the difficulty made by the valvular imperfection; in which the cavities are but little stretched; in which a stronger impulse is not associated with marked apex displacement or with greatly increased transverse percussion dulness; in which the arteries do not throb inordinately, nor the veins are turgid, nor the surface mottled and the capillary circulation sluggish; in which there is no dropsy, no respiratory embarrassment; in which the general health is good, and exercise does not produce inordinate distress,—we know that compensation has fairly followed injury, that heart muscle and cavities are in, for that case, healthy condition, and should endeavor to keep them so by simply regulating the patient's life and habits. No matter by what name the valvular disease is labelled, there ought to be no interference with it by drugs, certainly not be remedies which act on the heart.

But the same patient may show excessive cardiac growth and force, and be greatly benefited by cardiac sedatives; or later he presents a halting beat of the heart, the cardiac dulness has increased, so has the impulse in extent, but not in force; there is œdematous swelling around the ankles; the veins are more prominent; lungs and liver are engorged; small vessels are visible in the skin, and are tardily emptied by pressure; —the stretching, faltering heart calls for support, and is rallied, made regular, and kept for a long time performing its functions admirably, by the persistent employment of moderate doses of digitalis. Yet this is the same patient; all the while the disease bears the same name. But his treatment has been followed by such striking results because the state of the heart muscles and of the cavity has been fully recognized, and been made the basis of remedial interference.

Persons thus supported in their circulation may be kept alive for years and capable of leading useful lives. But this is not the main point I wish to bring out. It is chiefly that the same valvular disease will at different times, according to the varying state of heart muscle and cavity, require very varying treatment. In truth, I have had cases come under my observation in which the active state of the circulation, the marked hypertrophy, the cardiac uneasiness were always greatly relieved by aconite, and so much aggravated by digitalis, which produced a sense of cerebral uneasiness and weight, that the patient had the greatest dread of this drug, even for temporary purposes; yet I have known such cases in time, when the heart began to weaken, owe, for years, their life to the steady use of digitalis.

The class of cases just alluded to, chronic in their course with slowly deteriorating compensation, are, usually, those in which small doses of digitalis act so favorably. The quantity required is, indeed, rarely more than ten drops of the tincture twice daily, kept up until the effect on the heart and pulse becomes perceptible—which may be in a week or in several,—and then suspended, to be resumed according to circumstances. Nay, I have found a single dose of ten drops, repeated once in twenty-four hours, preferably at bedtime, show the same happy results. Some patients do better with five drop doses, every fourth or sixth hour. But the rather larger dose, at longer intervals, is usually the less disturbing plan. Should the digestive organs become deranged, I use digitalis by suppository; from two to four minims of the fluid extract incorporated in cocoa butter are efficient.

Digitalis acts in the cases under consideration chiefly as what is called a heart tonic; it makes the contractions of the cardiac muscle stronger and slower, it produces a fuller flow in the finer vessels. It answers, as already stated, in small or in very moderate doses. It is required in much larger amounts in those instances of valvular disease, comparatively rare, in which there is almost from the first dilatation and all the

excessive feebleness of circulation this brings with it; or in which, late in the history of the valve affection, the dilatation has outstripped the hypertrophy. Under both these circumstances of cardiac weakness, digitalis may be alternated with strychnia and supplemented by alcohol.

There is yet another cardiac condition encountered in valvular disease, in which digitalis is the principal remedy, and in still larger doses. It is where the compensatory hypertrophy is gradually lessening in proportion to the valvular defect; where the venous system is becoming gorged, the breathing much oppressed, the internal organs congested; where the feet are beginning to swell, the pulse is rapid and compressible, and the heart often fitfully excited; it is when the symptoms become rather suddenly aggravated, and a sense of weight and distress in the cardiac region suggests that the organ does not fully empty itself, that larger doses of digitalis will show a wonderful influence. Fifteen minims of the tincture every second or third hour will not only cause the struggling organ to contract powerfully and help the general circulation, but will diminish the choked condition of the cavities, notwithstanding that up to a certain point digitalis prolongs the diastole. The action of the drug is helped by ammonia, by brandy; but while given in hese large doses the patient must be kept at rest. The mischief once checked, smaller doses will again show their good effects. We may meet with the condition under discussion in any case of valvular disease; undoubtedly most often in mitral complaints, but also in advanced stages of aortic regurgitation; and, if in the latter affection, we need not be deterred, on theoretical grounds, from withholding the treatment indicated.

In the remarks just made it has been assumed that we are dealing with hearts in which the muscular fibre, however increased, is, on the whole, healthy; in other words, not in a state of degeneration. But supposing that it be; supposing that there be a granular, or a fatty, or a waxy, or a fibroid change. Is the treatment to be altered? I do not think that it can be materially modified except in the rather steadier use of stimulus; yet we will not obtain the same result from digitalis or kindred agents, and arsenic or strychnia is always worthy of trial. These are difficult cases to treat, and difficult cases to recognize. The age; the history, which shows a likelihood of fatty or other degeneration; the aspect of the patient; and the very fact that the heart muscle does not seem to respond to cardiac tonics, give us a clew to the true character of the affection. Neither the sphygmograph nor the cardiograph helps us much in the recognition.

We have been considering heart complaints, and they are the most common, in which sooner or later the compensation is defective, and the heart has to be sustained. But there are cases, already alluded to, in which this never happens, in which no interference is required, in which

the patient, if patient he can be called, has a heart quite sufficient for the ordinary purposes of life. It gives him no uneasiness, and, even if aware of his cardiac malady, its existence ceases to trouble him. These are especially cases of aortic disease, narrowing or regurgitation, particularly the former, with marked, but not excessive hypertrophy. Secondary results of the cardiac affection are not seen; though, as is fully recognized, there is greater tendency to sudden death, and violent exertion must be avoided. Yet I have known persons having these aortic maladies distinguished in pursuits with constant strain; one, an officer of many campaigns; the other, a most laborious physician; the third, the captain of an athletic team at a college proud of its athletic eminence; and not one is aware of being the worse for exertion, suffering neither pain nor shortness of breath. Two have lived over twenty years since I have been cognizant of their malady; they do nothing to counteract its effect, except leading a very temperate life.

Yet another class of cases presents excessive muscular growth, and cavities that have but moderately increased. This state is more often met with in aortic affections, particularly regurgitation; but it may also happen in mitral regurgitation, with or without coexisting aortic disease. The impulse is extended, forcible, and forcible out of proportion to the cardiac percussion dulness; there is often throbbing of the vessels of the neck, dull headache, tension in the pulse, and a feeling of constriction in the chest. Aconite is preëminently the remedy; it diminishes the blood pressure in the arterial system and gives great relief. I usually employ two drops of the tincture, every fourth or sixth hour, for the first few days of the treatment, and then only twice a day; or give one drop every third hour until an effect on the force of impulse and pulse is produced, and keep up this effect with a drop dose, two or three times a day, for several weeks, intermitting the treatment, and resuming it from time to time. Veratrum viride has similar applicability; it is, however, more apt to nauseate. But I have often had the happiest results from a combination of one-drop doses of aconite tincture with three of tincture of veratrum viride, and seven of tincture of ginger. It is an admirable sedative, and does not sicken.

Summing up, then, the treatment of valvular affections of the heart as they present themselves ordinarily, and basing it chiefly on the condition of the cardiac muscle and of the cavities, we find practically three groups:

Cases in which no special treatment is required.

Cases in which excessive growth and strong action call for aconite or veratrum viride.

Cases in which, either early or late, and with or without increased muscle, the heart falters and needs support, and for which digitalis, used differently according to varying indications, is the principal remedy.

This line of treatment is held to independently of the exact valve affection. It requires tact and experience to adjust it to the individual case. But when adjusted, the results are excellent.

I turn now to the other points laid down at the beginning of this paper, which are to guide our therapeutics. They will not long detain us; for they are of far less importance than the one just considered. The rhythm of the heart, its regularity or irregularity, has, indeed, been already alluded to in connection with the state of the cardiac muscle and cavities. Still there are cases, especially of mitral narrowing, in which the extreme irregularity presents a striking feature, and in which the question naturally arises, whether we cannot do something special to remedy so threatening a condition. They are mostly cases with imperfect or weakening compensation, and, therefore, to be benefited by digitalis and remedies of that class. Yet, as an adjunct to this treatment, belladonna may be advantageously employed, and pushed to its constitutional effect. From belladonna alone I have not seen any marked results as a cardiac tonic; but, without depending entirely on it, I know it to be valuable for the relief of irregular action.

The condition of the arteries and veins and of the capillary system furnishes an indication for treatment which is apt to be overlooked. Attention is paid to the veins and to their turgescence in instances of dilated right heart and cardiac dropsy. But there is the equally important state of the arteries, of the arterioles and capillaries, and the appearance of the skin and the network of fine vessels in it, by which we can judge of the more minute circulation. Now, we must remember that the very remedy we use most in cardiac disease, digitalis, contracts the arteries and arterioles, and the indications are often to get with increased cardiac power a free flow in the vessels without resistance from them. No remedy does this; and a certain remedy of the kind is greatly needed. It is claimed that strophanthus has this valuable property, that it is a cardiac tonic which does not also contract the bloodvessels; but this is not proved—indeed, recent researches, such as those of Bahadhurji,[1] suggest the contrary. Still, the evidence is in favor of strophanthus contracing the vessels to a much less degree than digitalis. Nitroglycerine and the nitrites produce rapid and great dilatation of the vessels, but have, I think, very little effect on the muscular power of the heart. Belladonna and atropia in decided doses have somewhat the same action

[1] British Medical Journal, Sept. 1887; also comments on his researches by H. C. Wood (Therapeutics, seventh edition, 1888.) Lauder Brunton (Pharmacology, third edition, 1888) speaks of strophanthus as not producing "so marked a contraction" of arterioles as digitalis. Purdy's observations (Chicago Med. Journ. and Exam., March, 1887) lead him to the conclusion that strophanthus acts only in large doses upon the vessels. Zerner and A. Löw (Wien. med. Wochenschr., xxx. 36-40, 1887) give many pulse-tracings and arrive at much the same results as those originally published by Fraser. They found strophanthus to cause a more energetic systole and longer diastole, without producing contraction of vessels. The whole subject needs further investigation.

as nitroglycerine, less on the vessels, rather more on the heart. Why can we not learn to combine nitroglycerine or atropia with digitalis in right proportions, and obtain, where we so wish it, full cardiac power without resisting vessels?

There is, I am certain, a rich field here for accurate research. While waiting for an agent which by itself has the needed qualities, we can use the remedies we possess to modify each other; and in the class of cases with sluggish capillary circulation we may also make use of gentle massage.

The probable length of existence of the malady and its likely cause must be taken into account in treatment; the former, because it gives us an idea how actively the process of compensatory hypertrophy is going on, and whether it had better be stimulated or checked. Besides, it bears on the point whether the original malady is so far off that it is still worth while treating. In this respect, then, the consideration of the duration and of the cause of the valvular lesion merges.

Now, let us consider this question of cause. It is needless to repeat all the possible causes of valvular mischief; the most prominent certainly is rheumatism, next come the degenerative changes, as of advancing years, of Bright's disease. When rheumatic, can we treat it specially? My experience says distinctly not. We possess no remedies to influence the results of the rheumatic endocarditis, when the acute stage is fairly over. Indeed, if it be three months after the attack, I believe the attempt useless. Before this, it may be worth while to try a course of iodides, of blisters, of rest. It will generally fail; but I have twice seen loud murmurs, left after rheumatism, thus disappear, and, I believe, the valve restored. When the attack dates some time back, no good results come from attempts at absorption. I have several times watched the effects of long-continued, faithfully carried out trials. One, in the person of a middle-aged physician who was determined to get rid of a rheumatic mitral disease with a marked systolic apex murmur, and no signs of pulmonary congestion. He kept himself saturated with iodides for a year, only stopping for short intervals, when sickened by the drug. At the end of a year the murmur was just as distinct as before, and his general health certainly not so good; the extent of hypertrophy appeared unchanged. I watched a similar case for eleven months; the result was the same. Yet it is well in instances which have clearly a rheumatic origin, to guard against the possibility of the recurrence of the rheumatism, since this may lead to an aggravation of the valve mischief; it is well at the first sign of a rheumatic outbreak to insist on rest and to administer freely alkalies, or the salicylates. At all times, too, ought the food, the clothing, and life generally, to be regulated as it would be in any one liable to rheumatism. The same line of thought, though not with exactly the same agents, will

indicate to us how to manage the heart disease of the gouty, with the occasional appearance of large quantities of lithic acid in the urine.

With reference to atheromatous disease, with its pulse so often of higher tension than the cardiac condition would indicate, we can, with our present knowledge, do nothing for the gradual decay which is going on. Acids have been suggested, but acids will not answer. Doubtless, future therapeutics will include solvents and other means to influence degenerative states, and they will be used in cardiac affections. Viewed now, we can only say that this kind of cases requires a more constant though varied, cardiac support than the recognizable organic mischief calls for.

There is, however, a form of valvular affection of the heart in which we can treat the malady according to its cause with the happiest results; it is the form which I have called functional valvular disorder. Since the publication of my paper on the subject,[1] I have had many more cases of it, and have learned to remedy the perverted valve action and its consequences in a number of instances which at first appeared to be incurable organic valvular disease. This was accomplished by rest, followed by graduated exercise, by careful diet, and by the persistent use of small doses of digitalis, or, in some later cases, of adonidine. The cases were chiefly mitral regurgitant affections; two of them distinctly followed heart strain from excessive rowing. They were not in any sense anæmic. In two in which the treatment was concluded within the last year, and one of which had considerable pulmonary engorgement, the valve has so completely returned to its normal action that no murmur could be detected by experts who saw them subsequently.

It seems almost needless to speak of attention to the general health, as an indication for treatment, were it not that some important considerations are involved. In the first place, it is evident that the better state we keep the blood in, the better the heart muscle will be nourished, the less likely to undergo degeneration. This is, perhaps, the reason why iron is so often thought of as a routine practice in valvular affections. Yet it is, as a rule, not a good remedy; it constipates, produces headache, a full feeling about the heart, and is badly digested. It ought only to be given in cases clearly anæmic, or after recovery from an acute malady. Food is generally much more important than iron. It should be nutritious, easily assimilated, but never taken in large quantities at a time. Strong broths, fish, eggs, meats, poultry and game, and such green vegetables and fruit as are readily digested must form the basis of the food-supply; and those who like milk, or have no distaste for digested milk, can take either in moderate amounts to advantage. There is no

[1] American Journal of the Medical Sciences, July, 1869.

objection to the use of coffee and tea if not excessive, and small quantities of alcoholic drinks are rather beneficial than otherwise in inadequate or faltering compensation. Except for gouty persons, we may hold to the axiom, that it is quite right to allow alcohol in cases to which we think digitalis applicable. The light wines are well borne and apt to be of service. Champagne is bad for most patients. I have known even a single glass produce violent palpitation, cardiac distress, and oppression. The dress should be loose-fitting and warm; and, owing to the readiness with which laryngeal and bronchial catarrhs arise, exposure to cold and damp should be avoided.

With reference to exercise, it is difficult to lay down rules. Of course, all violent exercise, like all sudden efforts, is to be avoided; and, in the cases with rapid circulation, I believe in considerable repose. But where the heart is not acting too violently, nor too rapidly, there is no doubt that regulated muscular exercise, especially on foot, is of use, as it sustains the nutrition of the organ. It must be kept within the limits of not producing shortness of breath, and ought not to be undertaken in the face of a strong wind. Of the hill-climbing and mountain-climbing plan of treatment, recently advocated by Oertel, I have had no experience. What I have seen of the difficulty people with valvular heart affections have in living in mountainous regions, as in Colorado, does not incline me favorably to the plan. Keeping the nervous system as quiet as possible and being cheerful, are undoubtedly great aids in holding the cardiac malady at bay. Nervous people with valvular disease do badly; their excitement tells on the heart. Worry is even worse. Absence of worry means generally long life; worry, short life.

The sixth condition I laid down for the treatment of valvular disease relates to the secondary results of the cardiac affection. With these it may be proper to consider some special heart symptoms which are at times of unusual prominence. But the attacks of palpitation and cardiac pain; the tendency to syncope; the dyspnœa; the dropsies; the affection of the kidneys; the headache and vertigo; the insomnia; the plugs that are washed into brain, or lung, or spleen, or liver; the hepatic engorgement; the catarrhal affections of stomach and upper bowel, furnish so many morbid states that it would be impossible here to consider them, or their management. I will only select for discussion a few, and try to make clear some points which I have learned by experience.

As regards palpitation in cases in which it is marked, we are often met by this difficulty, that it gives a fictitious strength to the impulse. We ask ourselves, whether it would not be better to treat such cases by sedatives? Yet the pulse, though rapid, does not correspond in strength the heart is really weak, laboring; and we shall rarely be wrong in

meeting the symptoms with ammonia, with brandy, and with similar agents. Then we notice a class of cases in which palpitation is not uncommon, but in which the action of the heart is sometimes rapid, at other times slow, and is very much influenced by the least fatigue. This may happen after some illness, other than cardiac, or after mental anxiety. There is a functional cardiac disorder, superadded to the organic malady, which may, indeed, show fair compensation, and really be but slight. Great attention to the general health, with rest, will get rid of the added marked functional disturbance; and occasional doses of bromide added to digitalis, if this be not otherwise contra-indicated, a course of cannabis indica, or of arsenic, will show good results. From opium, too, given in small amounts, we are apt to observe a happy influence.

In yet another class of cases we have a constant sense of cardiac uneasiness or actual pain as a striking symptom. In such the iodides usually do good, also wearing a plaster over the heart. It may be that plasters, as Lauder Brunton suggests, act simply by pressure; but, at all events, they act. In instances in which there is decided force to the impulse, I often order aconite plasters, of half strength; in other instances, belladonna plasters; and the relief they give makes the patients very willing to repeat them. But the best of all remedies is nitro-glycerine. It is most unfortunate that this valuable agent, which lessens blood pressure and diminishes the resistance the heart has to overcome, and which, therefore, ought to have so large a field of usefulness in valvular disease of the heart, is so repugnant to many patients, and produces headache so readily that it has to be discontinued. Yet those who can take it reap the benefit. I have refrained from quoting cases in detail, but I cannot forego citing two striking instances of its favorable use, and in one of long continuance of its administration.

Mr. A., seventy-one years of age, was obliged to retire from the management of a large business on account of shortness of breath and constant dull pain in the cardiac region. He was also much annoyed by dyspeptic symptoms. He presented a mitral incompetency with only slight compensatory hypertrophy; indeed, the impulse was not strong. He had used many remedies, and did not tolerate digitalis well on account of its disturbing the stomach. Drop doses of nitro-glycerine, increased to two drops three times a day, removed in a few weeks the cardiac pain, stopped the intermittent action of the heart, and did the dyspnœa more good than anything else. He was able to resume his occupation, reverting to the remedy as he thought he needed it.

Mrs. E., fifty-five years of age, had a terrible record with reference to disease of the heart. Her grandfather and father had both been extremely gouty, and there was reason to think had had disease of the heart. Two sisters had died of valvular disease. She herself had had swollen feet when a young woman, and other evidences of gout. But these subsided; and, as years passed by, the large joints and the muscles

troubled her, and she looked upon herself as rheumatic rather than as gouty. Yet she never had an acute attack of rheumatism. She was fond of travelling, and I did not see her at times for long periods. But five years before her death I am certain that she had no cardiac malady; for, knowing the history of the family, I examined her with reference to this point. She went to Europe two years subsequently, and about that time began to notice that she could not go up hill without panting.

While at Homburg, about eighteen months before her return home, she had an attack of angina, for which nitro-glycerine was ordered, with relief. A subsequent and more severe seizure six months afterward at a railroad station, after some exertion, caused her to take the remedy regularly; and she soon learned that, if she persisted in its use, she had neither attacks of angina nor the steady cardiac pain from which she suffered. She kept on with the medicine, in the shape of tablets of $\frac{1}{100}$th of a grain, twice daily, rarely oftener, for a year, stopping it only for short periods. She had mitral regurgitation with very moderate hypertrophy; tendency to pulmonary congestion and to bronchial catarrh, scanty urine with some albumen, never exceeding one-fourth of the fluid in the test-tube, sleeplessness, and swelling of hands and feet. The heart was made more regular, and the dropsy speedily relieved by digitalis and acetate of potassium. Indeed, it was kept away by this, with the occasional substitution of caffeine. Under these remedies alone, however, the cardiac pain began to return; toward the close the weakening heart had to be sustained by the free use of brandy. For her oppression and miserable nights, dry cupping and Hoffmann's anodyne proved at first of service; she had, finally, to take full doses of morphia. The tablets of nitro-glycerine were not abandoned until near the end. She died comatose.

One of the most important of the secondary results of the cardiac malady is the diminution of the quantity of the urine. Not nearly enough attention is paid to this point, and, unless the urine be albuminous, it is not thought to be of any service to take its state particularly into account; yet it is very valuable to do so. Scanty urine, often of higher specific gravity than normal and full of urates, will go hand in hand with cardiac pains, with headache, and with dyspnœa. It is well known that the shortness of breath in valvular disease does not always receive an adequate explanation in the physical condition of the lungs. The explanation may be partly found in the concentrated condition of the urine, and, very likely, in some of its retained elements producing the disturbance in the capillaries of the lung or the respiratory centre. At all events, from a practical point of view, we observe that diuretics, in the condition alluded to, are most valuable in relieving the pulmonary distress and the other symptoms. Of great service is caffeine, than which, indeed, there is no better diuretic in cardiac cases, especially those with weak heart and concentrated urine, and which, also, up to a certain point has the properties of digitalis as a cardiac tonic. The dose generally sufficient is two grains of the citrate given every third hour; but it may be given in five grain doses, or more. Caffeine itself is

advantageously administered, as was, I think, first suggested by Tanret, in combination with benzoate of sodium in solution. I have found a grain of each of these drugs mixed with syrup of orange flowers, or of orange-peel, and water, each half a drachm, a good formula. Some of the new salts which are very soluble, such as the cinnamate or the phtalate, are also easily given. The former of these, as the sodio-cinnamate, contains sixty-two per cent. of caffeine; the latter fifty-six per cent., and is soluble in five parts of water. Both are adapted to hypodermic use; so is the sodio-salicylate.

Dyspeptic symptoms, due to a catarrhal condition of the stomach and bowel, are very common in valvular diseases, especially in those of the mitral and tricuspid valves. They may or may not be associated with an engorged, torpid liver; they may or may not be in the form of painful digestion. In either case the failing appetite is apt to be treated by tonics, often by iron. These are not, in my judgment, the right remedies. I believe purgatives are; they strike directly at the morbid state, and subsequently some bitter, or small doses of nux vomica, will restore the desire for food. Purgatives are not given as often as they ought to be in valvular disease of the heart. There is the fear of weakening the patient; which they do not, if not abused. They not only remedy the stagnation in the portal circle and remove the catarrhal condition, but they lessen the liability to dropsy. The old treatment of an occasional mercurial was good treatment; and calomel may be beneficial in other ways in disease of the heart, especially those with dropsical tendencies, than through its diuretic action, which is now receiving so much attention.

It is impossible in examining the treatment of diseases of the heart, whether of the disease itself or of its consequences, not to be struck with the important part digitalis plays. And the question naturally arises, whether any of the newer remedies can take its place? I have tried them all, and I believe there is not one which is as trustworthy, as valuable; not one is at the same time so good a cardiac tonic and a diuretic. But undoubtedly digitalis cannot be kept up uninterruptedly, and it is apt to produce, after a time, derangement of the digestive organs. Some cannot take it at all; and as in any form of tonic, so with this cardiac tonic, we get better results by occasional change. I hold caffeine, strophanthus, and adonidine to be the best substitutes. I have already spoken of caffeine. From adonidine I have witnessed, in one-tenth to one-fifth of a grain doses three times a day, some admirable results; but more in cases of functional than of valvular disease of the heart. Yet even here I have known it to act as an excellent heart regulator. So does strophanthus, which I have, moreover, often seen strikingly influence irregularity, and dyspnœa. Its action is very rapid, but not so permanent as that of digitalis, and though much is

claimed for it as a diuretic, its influence in this respect is inferior both to digitalis and to caffeine. It would seem specially applicable to cases with defective power and high arterial tension, as sometimes met with in the heart lesions of Bright's disease; but from actual experience I am not yet certain on this point. Convallaria has, on the whole, disappointed me in the treatment of valvular disease, though I think it is of value in palpitation of the heart and in other forms of functional disorder. Cocaine answers very well in some cases; it is certainly both a cardiac stimulant and tonic and not devoid of diuretic powers.

A remedy which I am using now a great deal is chloride of barium. Since I became acquainted, through the investigations of Boehm and of Bartholow, with its physiological action and learned that in this it resembles digitalis, I have prescribed it repeatedly in valvular affections. I find it both a general tonic and a cardiac tonic, a remedy that increases the tone in the bloodvessels, a fairly good diuretic, and one that can be taken for a long time without disordering the stomach. It may be even, as Kobert[1] shows, administered hypodermically. The dose in which I have given it by the mouth is one-tenth of a grain in pill, three or four times daily; a rather larger dose is, however, admissible. In very decided amounts it is apt to produce diarrhœa. As Bartholow points out, it has many incompatibles, and it is best not to give it in combination. Among its properties I have noted that it lessens cardiac pain. I learned this from the case of an elderly gentleman with a mitral lesion, regurgitation with some narrowing and defective compensation, in whose case pain or constant cardiac uneasiness was a prominent feature. Digitalis did him in this respect no good and was losing its effect in steadying the irregular heart. Chloride of barium in one-tenth of a grain doses improved him greatly; the oppression was relieved, the heart became more regular, the cardiac distress disappeared. He has been more than once benefited for a long time by a three weeks' course of the remedy.

I must not bring this paper to a conclusion without mentioning a point of which I know the great value,—to make periodical examination of persons affected with valvular disease. I am not speaking of those in whom serious symptoms call for constant supervision; rather of those who, under our advice, take little or no medicine. In them, too, it is true that the heart of to-day may not be the heart of a month hence. Yet they are the ones chiefly in whom beginning changes can be most readily met, and whose lives, with the aid of treatment when necessary, can be greatly prolonged. Let them be made aware of the importance of skilled supervision. It will not mean needless interference; it will mean judgment as to when interference is really helpful.

[1] Therapeutic Gazette, June, 1887.

In valvular disease, as in other instances of disease of the heart, advance in knowledge is demonstrating how the arrow in the side can be kept from being fatal.

THREE SUCCESSFUL CASES OF CEREBRAL SURGERY.

INCLUDING (1) THE REMOVAL OF A LARGE INTRACRANIAL FIBROMA; (2) EXSECTION OF DAMAGED BRAIN TISSUE; AND (3) EXSECTION OF THE CEREBRAL CENTRE FOR THE LEFT HAND;

WITH REMARKS ON THE GENERAL TECHNIQUE OF SUCH OPERATIONS.[1]

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(Concluded from page 357.)

Case III. *Epilepsy of uncertain origin; attacks beginning in left hand; excision of cerebral centre for left wrist and hand; recovery in eight days; epilepsy improving to date.*—W. B., of Maryland, aged twenty; American; clerk in a country store. His best and present weight is one hundred and thirty pounds; five feet five inches in height. The patient is a hearty young man, having had all the diseases of childhood except scarlet fever. At the age of three years he had spasms for six hours from indigestion. He had no subsequent attacks.

At the age of thirteen, he rose one morning at four o'clock to make the fire, and after doing so fell asleep in a chair, from which he fell, and he thinks he struck his head on the stove. He was unable to fix the location of the blow, as there was no cut or bruise on the head. On waking up he found himself on the floor dazed and suffering with headache, which continued all day, but was not sufficient to keep him in bed. His history is quite imperfect in detail. Ever since this accident (?) he has had epileptic attacks, always preceded by dizziness. Stooping often brings one on, he and his family say (though he could never accomplish this before me). He has never had a hurt in consequence of these attacks. Sometimes they occur in the night. He eats and sleeps well. His friends state that the attacks begin with a fixed or a wild look from the eyes, and when engaged in any action, such as tying a bundle with twine, he would continue the action for an unreasonable time, till he would come out of the attack and resume his work as usual. His head sometimes turned to one side and sometimes to the other before any other part of the body became affected, then the arms would begin to jerk, then the convulsion would become general. The fits would last about two or three minutes, and would be characterized by very marked convulsive movements.

Present condition, April 23, 1888: *Head.* When the head was shaved two small scars were seen, one from a recent blow and one unaccounted for; neither of them seemed important. On the right temple was a distinct furrow, which could be traced over the temporal muscle into the

[1] Read before the American Surgical Association, September 18, 1888.

temporal fossa. It began one-quarter of an inch to the right of the middle line, and seven-eighths of an inch in front of the bi-auricular line, terminating below one and one-quarter inches in front of the bi-auricular line and one and three-quarters inches above the zygoma, and one and one-half inches behind the external angular process. At first this irregularity was thought to be the coronal suture, but it was so regular on the edges and so sharply defined that it was thought to be a furrow, and the question was, Might it not be a fracture? No such furrow existed on the left side, where the coronal suture was detected with great certainty. On the right side, the coronal suture, unless it was this furrow, was very indistinct. The temporal artery lay posterior to the furrow.

Dr. Charles A. Oliver makes the following report on his *ocular conditions:* "April 24, 1888. Direct vision for form, normal in each eye separately. Range and power of accommodation in each eye, proper for refractive error and age of patient. Visual fields normal in sequence, though both reduced to more than one-third the average areas, those of the right side being somewhat the smaller. No subnormal color-perception. Pupils normal in size and shape. Irides freely and equally mobile to light-stimulus, convergence, and accommodation. Very slight insufficiency of the interni. Characteristic changes in the eye-grounds usually seen in epileptic subjects with frequent seizures—*i. e.*, a low and chronic form of retinitis, associated with a dirty red-gray appearance of the optic nerve: this being the more marked on the right side.

"*Remarks.*—From this grouping of eye-symptoms, which, with the exception of the eye-grounds and their resultant visual fields, are normal, and hence negative in character, there can be but one legitimate conclusion: a similar condition of the layers of the cerebral cortex, the result of repeated convulsive seizures; the position of the greatest amount of change (indicative of probable situation of irritation focus) being indeterminable."

The friends of the patient insisted on something being done at once, as they desired to take him home. I stated that I would make an exploratory incision in the scalp, and if anything abnormal was found I would go further.

April 30, 1888. Operation.—An exploratory operation was done by making a horseshoe-shaped incision with the convexity looking backward, enclosing in its area the suspicious groove before alluded to. Just before the operation another very careful examination was made, and three facts noted of importance: First, the coronal suture could be more distinctly made out than was at first supposed, and it lay behind the furrow; second, the furrow bifurcated in such a way as to suggest a bloodvessel; third, at the lower part of the furrow pressure caused bulging corresponding to the furrow and again suggested a vein. In view, however, of the preparation for the operation and the urgent anxiety on the part of his friends, I deemed it best to make the exploratory incision. The most careful antiseptic precautions, as detailed in Case I., were used, without the spray. Ether was the anæsthetic used. No ergot or morphia was given, as I hardly deemed it probable that I should do more than make an incision of the scalp. On lifting the scalp from the skull nothing abnormal was found. The groove or furrow, so particularly described, was found to be a vein, but I never before felt a vein with such sharp, hard borders, and, until just before the operation,

I was very doubtful as to what the furrow was. The patient made an uninterrupted recovery without any rise in temperature.

When he had recovered his family changed their minds, and advised that he remain here under my observation for treatment with drugs, or another operation should anything be found to indicate its being desirable. Accordingly I placed him under the constant care of two trained nurses, who reported to me the character of each fit in its minutest detail. Dr. Sprissler had already seen two attacks from the beginning, and the nurses reported three others which were completely observed. All five of the attacks were practically as follows: Each attack invariably began in the left arm and fingers. The thumb and fingers became rigid and extended, widely separated, the hand and arm in a right line and the elbow flexed; usually both legs were next attacked, the left usually preceded the right and was crossed in front of it; next the face became attacked, the mouth being drawn to the left. (In one attack the mouth was affected before the leg.) After this the convulsions became generalized; the fingers of both hands flexed; the pupils were first dilated and then contracted. These attacks lasted from one to ten minutes. The number of them was markedly increased immediately after the operation of April 30th. Not unusually he would have one or two a day, but they gradually diminished to their normal frequency. Finding, now, that the fits began, so far as was observed, in the left hand, I determined to excise the centre for the left hand and wrist.

Operation May 30, 1888. Present, Drs. William Thomson, J. H. Musser, F. X. Dercum, J. M. Taylor, J. K. Mitchell, Morris J. Lewis, W. J. Taylor. His head was prepared on the day previous with the usual precautions mentioned in Case I. One-eighth of a grain of morphia and a drachm of ergot were given half an hour before the operation. During the etherization he had a fit, as was the case at the former exploratory operation.

A curved incision, 3 x 3½ inches, was made with the convexity looking backward, the flap lying over the fissure of Rolando. This fissure had been first marked on the scalp by Hare's and Thane's methods; the results of both of which were practically identical. In order to indicate it upon the skull itself, two small incisions were made at the upper and lower end of the line, and with a bone gouge two little nicks were made in the skull through the openings. A one and one-half inch trephine was now applied, the centre pin one-eighth of an inch back of the fissure of Rolando, the lower margin of the trephine being about a quarter of an inch above the temporal ridge. The bone when removed was placed in a cup of bichloride solution (1:2000). This cup was placed in a large basin of hot water, which Dr. Musser was careful to keep at 105°–100°. The bone and dura both appeared normal; no bulging was observed, and the pulsation was regular. The dura was now partially incised and the brain exposed. The pia was very much infiltrated with serum, producing an œdematous layer much obscuring the brain tissue, especially the sulci over all this area. Two convolutions, running obliquely from above downward and forward, crossed the trephine opening entirely, while at the anterior border a third convolution, apparently in a similar direction, was partially uncovered. Large veins ran in the pia over the sulci. An attempt was made to determine which was the Rolandic fissure and which was the minor fissure by separating the convolutions and determining their depth, but both the

sulci exposed were about an inch deep. This, therefore, gave no clew to the point desired. Depressing the brain exposed a further area under the edge of the bone but gave no information of moment. An application of the cyrtometer (disinfected) was then made to redetermine the position of the fissure of Rolando. This ran in the middle of the three convolutions before mentioned (Fig. 9). In order to determine the seat of the hand centre a faradic battery was then used. The ends of the wire were wrapped in borated cotton dipped in bichloride solution. Stimulating the two posterior convolutions gave no results, even when the current was perfectly perceptible to my hands and contracted my muscles. On touching, however, the anterior one of the three convolutions the hand instantly moved, the wrist (as observed by Morris J. Lewis) moving in extension in the midline and to the ulnar side at different touches, and the fingers being extended and separated. Above this centre were the shoulder and elbow centres, and below the face centre, as described further on.

FIG. 9.

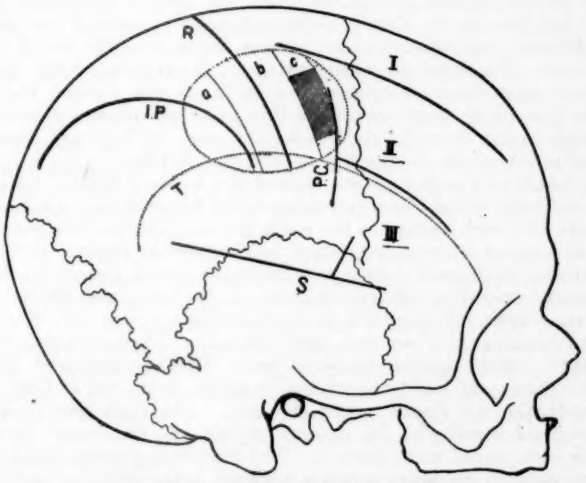

Diagram of skull. (Drawn by Dr. J. M. Taylor.)

S, Fissure of Sylvius. R, Fissure of Rolando. IP, Intraparietal sulcus. PC, Precentral sulcus. T, Temporal ridge. I, II, III, the first, second, and third frontal convolutions. The *dotted* line represents the opening in the skull; *a*, *b*, *c*, are the three convolutions first exposed in the trephine opening. The *shaded lines* represent the portion excised.

The opening in the skull was now enlarged, chiefly forward and downward, till it measured two and a half inches antero-posteriorly by two and a quarter inches vertically, so as to disclose this convolution (*c*) to a larger extent. From the point of application of the centre pin (an eighth of an inch behind the fissure of Rolando and one inch above the temporal ridge) the opening extended forward one and three-eighths inches, backward one and one-eighth inches, upward one inch, and downward one and a quarter inches. In enlarging the opening forward I

invaded the territory covered by the flap of the exploratory operation a month before. Under this area the dura was noticeably more adherent to the bone than elsewhere.

The anterior border of this convolution (Fig. 9, *c*) was marked by a fissure nearly parallel with the other two. The portion of the convolution (*c*) containing the hand-centre, about one and a quarter inches long, as ascertained by the battery, was then incised vertically above and below with a knife, the lower incision being three-eighths of an inch above the temporal ridge. The sulci in front of and behind this convolution had been previously freely opened. The lower end of the portion to be taken away was then lifted and the loosened convolution was cut away from the underlying brain substance with a pair of scissors. While this was being done the hand was watched, but no movement was perceived. The wires of the battery were now again applied, while Dr. Lewis again observed. At the remaining part of the convolution at the upper margin of the excised portion, movements of the left elbow (flexion and extension) and shoulder, especially of the latter, which was raised and abducted, were noticed. Touching the part of this convolution remaining at the lower border of the excised portion, produced an upward movement of the whole left face, no one muscle being noticeable in isolated contraction. The platysma was not contracted nor was the angle of the mouth drawn downward. Touching the white matter at the bottom of the excision produced again the movements of the hand. It was deemed, therefore, certain that all the hand-centre had been removed. It was noticed that the convolution immediately behind the part excised was somewhat bruised in the efforts to open the sulci on that border.

Dr. Lewis now took a photograph of the exposed brain. Comparatively little trouble had been experienced from hemorrhage. An Esmarch bandage had been applied to the scalp, but it, probably, was not drawn tight enough, as a few of the vessels bled somewhat freely. These were caught with hemostatic forceps and the bandage was removed. It had been passed only twice around the head. In the brain itself the large vessels were necessarily disturbed to a considerable extent and bled quite freely. Cocaine (four per cent.) and hot water did good service, but for the larger vessels ligation answered best. This was done with Kocher catgut. The tying had to be extremely gentle, with even pulling of the two ends, else the vessels would give way. The dura mater was now replaced and sewed with fine chromic catgut, two bundles of horsehair having been placed underneath it. The final oozing was so slight that it was not deemed necessary to put a drainage tube under the dura. The disk of bone and some fifteen pieces removed by the rongeur forceps were now replaced on the dura. Two bundles of horsehair were placed between the bone and the scalp and also a small rubber drainage tube posteriorly. The scalp wound was then closed by fifteen chromic catgut sutures. An abundant dry dressing of corrosive sublimate, rubber dam, and a bandage completed the dressing. The operation had lasted about an hour and a quarter. When put to bed the condition of the patient was satisfactory. As soon as he recovered from the ether he was quite violent in his restlessness. Soon afterward he had an epileptic attack ushered in by staring eyes, then the left leg was crossed over in front of the right and the body became rigid. In about a minute the fit was over. No movement of the left hand or face occurred. Immediately after the operation the left hand was found to be paralyzed as to all movements

both of fingers and wrist. The elbow was paretic, the shoulder and face perfectly unaffected.

At 6 P. M. the dressing was changed as it was saturated to the margin from moderate bleeding. Again at 3.30 A. M. May 31st, the wound was redressed for the same reason. The oozing at this dressing was much more serous and less bloody. At 12.30 A. M. May 31st he had another epileptic attack lasting about a minute precisely similar to the last one, except that he rolled over on his abdomen.

31st, 8 A. M. (first day after the operation). The patient has been perfectly conscious ever since he recovered from the ether. The only physical change noted was the paralysis of the left hand, which was unaltered. The pupils were unaffected. He slept some during the night, but, on the whole, the night was restless and disturbed. A catheter was used both last night and this morning. The urine was normal in quantity and quality. He complains of discomfort, but states that he has no pain of any moment. He was allowed nothing but ice during the night, but this morning, as he was moderately hungry, he was given some milk. Some rather violent retching followed the operation but it ceased later in the evening. The wound was redressed, as the dressing was slightly moistened with bloody serum, and the drainage tube removed. In the left hand each finger was recognized correctly, but the two points of the æsthesiometer were recognized as only one when so far separated as the entire length of the finger or the entire breadth of the hand. The right hand, however, is but little better than this, as the two points are recognized on the fingers as one at two-thirds the length of the fingers apart and about the same crosswise. His mental condition is such, however, that I do not think this test reliable, saving to show that the left hand, in a general way, is not so sensitive as the right.

June 2 (third day). The wound was redressed although the dressing was scarcely stained. Five out of the fifteen sutures were removed, as the wound was sealed throughout its entire length, saving where the drainage had been. All the horsehairs but six were removed; two of these going under the dura and four under the scalp only. An enema to-day evacuated the bowels satisfactorily. His urine is evacuated only by catheter twice a day. The bladder seems to have lost its expulsive force. When the catheter is inserted no urine flows except upon pressure over the bladder. The amount is small—twelve ounces in twenty-four hours. Its character is normal.

6th (seventh day). In the last four days his temperature has fluctuated between normal and 100°; the latter occurring at night. His general condition could not be more satisfactory; his appetite is good; his head feels perfectly clear; and he has had no pain. On the fourth day the wound was redressed and all the stitches removed. The wound was entirely healed. A little œdema exists in the centre of the flap, and pressure on it gives a sensation of resistance almost equal to that over the rest of the skull. Up to last night the catheter had to be used, excepting that he was able to pass his water when he took an enema; but since last night he has passed it voluntarily though very slowly and with little force. He has been up and dressed since the fifth day after the operation. He is anxious to go down stairs to his meals, but on account of the slight rise in his temperature I have not deemed it prudent. On June 3d he had two attacks characterized as before. On June 4th he

had one more. The attacks are evidently becoming very much lighter and less frequent. Yesterday and the day before he had two aborted attacks. He, himself, is most annoyed by his left hand which is still paralyzed, though twice there have been slight involuntary movements in it. The elbow has entirely recovered from its slight paresis.

7th (eighth day). As his temperature had fallen to normal and he was anxious to go out, I allowed him to walk to a barber shop and get shaved. The left hand was still paralyzed.

The attacks after the second operation, as after the first, were increased in frequency, but they were not so severe, and they now diminished quite rapidly in severity, frequency, and duration, rarely exceeding one or two minutes in length. At present in an attack the left hand does not move, the eyes are staring, his right arm, legs and body stiffened, but little muscular movement; the mouth drawn to the right and the head turns to the left.

18th. Dr. W. J. Taylor reported his temperature as follows: In the right palm 37° C., the left hand 37.5° C., the right side of the head 37.7° C., and left side of head 37° C.

28th. I examined him carefully to-day, as he was to return home. His skull is perfectly firm, as much so on one side as the other, with very slight, if any, irregularity of surface where the pieces of bone were replaced. Pressure produces no yielding or pain. Except for the two scars one would not know that his skull had been opened. The fits have become greatly diminished, occurring now only once in two to four or five days, and then only of momentary character, practically *petit mal.* There is no convulsive movement whatever, and his mental condition is more satisfactory, inasmuch as he is more cheerful and communicative, and far less morose and despondent than when he first came under my care. His hand and wrist are still as before, but he has ceased to carry his arm in a sling as he did for the first three weeks after the operation.

I made the following measurements: Right biceps ten and one-eighth inches, left nine and three-quarters inches, right forearm two and one-half inches below the olecranon ten and one-quarter inches, and the left nine and three-quarters inches. Unfortunately I did not make any measurements of the same points before operation. Whether this difference is due to wasting or is simply a natural difference in his case of a smaller, because less used left arm I am unable to say.

Electrical responses of all muscles of the arm, forearm, and hand are equal and prompt on the two sides, both by faradic and by constant current. Unfortunately circumstances made it impossible for me to determine whether reactions of degeneration were present or not.

July 20. He writes that motion is beginning to return in the left hand.

Dr. George Dock examined the specimens of brain tissue and reports as follows. In all three cases reported in this paper, I may add, the specimens were placed in Müller's fluid the instant they were removed.

"The specimen was received in Müller's fluid on the day of the operation and examined in less than twenty hours after removal. It proved to be part of a convolution cut off at a right angle at one (lower?) end, at an angle of about 45 degrees to the surface at the other, and with a smooth base. It measured, when fresh, 32 millimetres in greatest length, 10 millimetres in thickness, and 18 millimetres in depth. The surface, from which the membranes had been removed, showed nothing unusual. In making a series of sections of an average thickness of 5 millimetres,

a hemorrhagic spot, 3 millimetres in diameter, was found, in the lower third, just below the cortex. Examined fresh, in Müller's fluid, this showed: 1, blood corpuscles of normal color and outline; 2, multipolar cells, with no evident alternations; 3, nerve-fibres, with and without double contours, showing no swelling of the myelin and no apparent loss of it; 4, bloodvessels. The smallest of these showed numerous highly glistening spots in their walls, the larger ones no alteration in structure.

"Having been placed in the hardening fluid so promptly the specimen was soon ready for staining. It was stained by both ammonia-carmine and Weigert's method, the latter giving very satisfactory results. Minute extravasations of blood were found in all parts. Most of these are along the course of small vessels, some confined within the lymph-sheaths, others of irregular shape among the fibres of the white matter and in the cortex. There are no blood-pigment masses and no diffused staining. The large hemorrhage mentioned shows blood corpuscles with well-preserved nerve-fibres, free myelin in small globules and fine granular material. In sections from this part of the specimen there is marked dilatation of the perivascular lymph-spaces. Some of these attain a diameter of not quite one millimetre, being from two to three times as wide as their main vessels. The capillary in them is often distended and the mesh-work, plainly visible, encloses a few corpuscles; in rare cases, however, a large number. The vessels appear normal here as elsewhere. The nerve-fibres are intact, as a rule. In a very few places, in small areas, they do not appear. These areas are in the extreme outer layer just beneath the surface, and when found I have also found small hemorrhages beneath them. The main bundle of white matter shows no diminution in size or failure of reaction to stains. The cortical layer is unchanged, save for the hemorrhages. The ganglion-cells are present in all parts of this layer. Some of them are very pale, but none show atrophic or inflammatory changes. Many of them lie in spaces rather larger than normal, which may be due to an œdema of the space, or to the action of the hardening fluid."

Remarks.—The first operation, in which the skull was not injured and the flap readhered to the skull and the wound healed without inflammation, teaches one important lesson—the marked lesion within the cranium that may follow a slight traumatism on the exterior. As I extended the bony opening at the second operation I wondered why, all at once, the dura became so adherent to the bone. In a moment I observed that this began just where I encroached on the area under the first flap. As injuries increase in severity their intracranial consequences must increase *pari passu*, so that we can easily understand how severe blows, even without fracture, may be followed by meningitis, or abscess, or, as in Case I., by a neoplasm.[1] Macewen (*Med. News*, Aug. 18, 1888) alludes to this and to the adhesion of the brain to the bone very happily as "anchoring the brain" and points out its deleterious results. I can hardly, however, concur in his inference that a higher

[1] Cf. Horsley, Amer. Journ. Med. Sci., April, 1887, p 365, Case VII.

temperature at the site of the injury is a contra-indication to surgical interference.

The moment the brain was exposed the marked œdema was the one thing noticed. It extended over the entire area exposed. Over the convolutions the œdematous layer was about one-eighth of an inch thick, and over the sulci three-sixteenths of an inch or more, so that the sulci were at first very hazily seen. Whether this œdema was the essential lesion or not cannot be determined, but, though the brain was carefully examined by touch (in the sulci to the depth of one inch), no evidence of any tumor or other lesion that might cause the œdema was found. The examination of the excised brain by Dr. Dock shows that this œdema was not merely superficial, but extended into the brain tissue throughout all the excised part, and doubtless beyond, how far beyond we can only guess. Besides this, Dr. Dock found numerous hemorrhages, which he believes to be recent, and probably due to the necessary traumatism in separating this convolution from its neighbors and excising it. During the operation I noticed that the convolution back of it showed marked evidences of bruising, though, of course, the manipulation was as gentle as possible. Whether these hemorrhages would have occurred had the vessels been entirely healthy may be easily a question.

But the most interesting question is, as to the location of the centre. I sought for this in the post-Rolandic[1] convolution just below its middle. (Centres (*a*) (*b*) (*c*) in Ferrier's plates. See Gray's *Anatomy*, last Am. edition.) There were three convolutions exposed by trephining, and the line for the Rolandic fissure ran in the middle of the central one (Fig. 9, *b*). The fissures in front of, and behind convolution (*b*) were of equal depth, and another, also of equal depth, existed in front of convolution (*c*). On the whole, I am decidedly inclined to think that the sulcus in front of (*c*) was the precentral or vertical sulcus, the one between (*b*) and (*c*) the fissure of Rolando, and the one between (*a*) and (*b*) either the beginning of the intraparietal, or, possibly, a retrocentral sulcus. If I am right, the centre for the wrist and fingers which I removed was in the pre-Rolandic gyrus, its lower limit being at three-eighths of an inch above the temporal ridge, and its upper end where it fused with that for the elbow 32 mm. higher up, and the shoulder still higher, while the centre for the upper face was in the same gyrus immediately adjoining the excised portion at its lower end. If the reader will compare Horsley's figures for these centres (Gray's *Anatomy*, last Am. edition, and AMERICAN JOURNAL OF THE MEDICAL SCIENCES, April, 1887), he will be struck with the accuracy of their representation. None of the wrist and hand centre existed in convolution (*b*); whether

[1] I have used the terms "pre- and post-Rolandic," instead of the more common names of these gyri, designedly. The fissure of Rolando is so important and well known that these names are instantly understood, far more so than "anterior central" or "ascending frontal," etc.

any existed in the convolution in front of (*c*) or not was not tested by the battery, but in view of the complete palsy of the wrist and hand it seems improbable. As one of the few instances[1] in which the results of experiments upon animals have been verified on man it is most important and gratifying, giving us new confidence in this important method of research which has already done so much to make cerebral surgery not only possible, but successful and promises so much more in the future.

The higher temperature[2] on the right side of the head so long after operation together with the continuance of the fits, may not mean anything discouraging for the future, yet it is in such marked contrast to Case II. that I shall watch it with interest. Probably the œdema will subside slowly. Certainly to date (August 12th), though he has had occasional convulsive seizures and a number of attacks of *petit mal*, yet, on the whole, he shows considerable improvement both as to number and character of the fits, with a decided gain in mental status. By "compensation," it is nearly certain that in time he will regain control of the left hand through the other hand centre, a process already, in fact, beginning.

General Remarks on the Operative Technique.

My experience in these three cases, as well as assisting at several others, in the new field of cerebral surgery, warrants some general remarks which I trust may prove of value.

1. *Shaving the head.* So important do I regard this that I would consider no diagnosis as assured and no operation warranted that had not been preceded by shaving. The unexpected and unknown scars found have surprised me in other cases, as well as in those here related. Besides this, no reliable mapping on the head of the cerebral fissures and gyri can otherwise be made. These can also be now marked on the scalp by the aniline pencil.

2. *Antisepsis.* Practically, the admirable rules laid down by Horsley were followed, nor can they be too strongly insisted upon. (See details in Case I.) No spray was used during any of the operations, though it had been used all the morning in the room in the first case. It is also especially noteworthy that on the day before I operated on the third case, circumstances made it needful for me to operate on a case of cancer of the colon with a fecal fistula and profuse suppuration. Dr. Willliam J. Taylor assisted me in both operations; and our hands were, of course, saturated with infection. After the bowel case we carefully disinfected them with soap and water, alcohol and bichloride, and several times

[1] Cf. Horsley's paper, l. c., pp. 358, 361, 362, and Macewen, Med. News, Aug. 18, 1888.

[2] The relative temperatures of the two sides of the head before the operation have been unfortunately mislaid.

repeated this during that afternoon and the next morning. No infection followed in the brain case—a most valuable lesson as to antisepsis.

3. *Anæsthesia.* In all three cases ether, and not chloroform, was used, and I saw no reason for any preference for chloroform.

4. *Marking the bone.* Whether to mark the site of a scar or other lesion, or to fix the site of the Rolandic or other fissure of the brain, the nicking of the bone by a gouge, through one or more small incisions in the scalp, is a most useful preliminary to the horseshoe-shaped incision for the flap. As soon as this flap is raised, all landmarks are lost, and one can only "orient" himself by a reapplication of measuring instruments, which probably have to be disinfected, or perhaps cannot be. Moreover, in my first case, it enabled me, as related, to fix accurately the situation of the tumor.

5. *Access to the brain.* The large horseshoe-shaped flap of scalp is infinitely preferable to the old crucial incision. The large trephines now used (one and a half, two, and even two and a half inches) are also a great help, and I think it a rule, almost without exception, that the bony opening should be ample. Bergmann's opposition to operative interference with large cerebral tumors, on account of the probable consecutive œdema, from want of support by the skull, certainly cannot hold good. In my third case the preëxisting œdema will perhaps find its best relief, indeed, from the operation. The success that has practically followed such operative procedures is its best vindication. Plenty of room, both for observation and for work, should be had. A small opening may defeat the very object for which we operate. A large opening adds no additional danger to the brain, and even if as large as in Case III., the integrity of the skull may be *entirely* restored. The "surgical engine" may be very useful in rapidly increasing the size of the opening, but it should be used by an expert (a dentist if the surgeon himself is not accustomed to its use) lest accidental injury be done to the brain. The chisel is not only needless but dangerous. It is quite surprising, also, how far beyond the limits of the skull opening we can feel and even see. The brain allows of gentle pressure very readily, and the finger can be inserted an inch all around the opening. The incision in the dura should also follow the margin of the bony opening (one-quarter of an inch away) and not be crucial. It may then be replaced and secured by catgut with ease. I have had some trouble in doing this with the ordinary needles, and have had made a handled needle with a sharp, short curve and an eye in the point. Probably a sharply curved staphylorrhaphy needle would answer well.

6. *Hemorrhage.* For the scalp I used the narrow band of the Esmarch apparatus in the second and third cases, as suggested by Dr. M. Allen Starr. In the second it answered admirably, but in the third

was soon cast aside as unnecessary. Generally, I believe, it will be very useful.

Hemorrhage from the vessels of the brain itself is one of the most important of all the operative questions. Morphia, as a preliminary, is useful, I have no doubt, as is also ergot, though I should give the latter in a dose of f℥ij–iv rather than ℥j, as I used. The effect of the cocaine applied directly to the brain was certainly very good. I shall, however, try it in a stronger solution (ten per cent.) in the next case. Very possibly, also, antipyrin might be of use in the same way. All such solutions, corks, bottles, etc., should be sterilized. I also used boiling water cooled to 115° or 120° F., to check the hemorrhage, and I could not see that its liberal use did any harm to the brain tissue. Pressure, also, is a most valuable means. But, after all, the chief reliance must be on the ligatures of catgut. They should not be chromicised, as that lasts too long, and may be an irritant, but are best prepared in oil of juniper and kept in alcohol (Kocher). In my second case I had no difficulty in tying the vessels, but in the third, and especially the first, their friability was such that the most delicate manipulation and equal tension on the two ends were requisite for success. It is not the arteries but the large thin-walled veins that give trouble. The cautery in any form should never be used. If there be any trouble in securing vessels of the dura or brain near the edge of the bony opening, this opening must be fearlessly enlarged, so as to give ready access to them. If the middle meningeal (or other artery, of the dura) cannot easily be tied at the cut edge, or even in its continuity, a suture may be passed around it by a needle passed through the dura, but the dura should then be carefully lifted so as to avoid any underlying veins. Weir has suggested the application of clamps to the cerebral vessels for twenty-four hours. My experience would make me doubt whether they would hold with such friable tissues, and, if they did, the tossing about of the patient's head might easily displace them, and possibly even involve great danger to the brain itself.

7. *Recognizing the centre sought for.* Only in Case III. did I have a definite centre in view. Ordinarily the gyri and sulci of the surface would be a fairly reliable guide, together with the various methods now used for mapping these out on the surface of the skull. If in doubt, the ordinary faradic battery will serve us excellently, as was shown in this case. The response to the stimulation of various parts of the same convolution was immediate, undoubted, and in every way satisfactory.[1] In order more handily to use this means of diagnosis I have had made by Mr. Flemming this little rubber handle with two insulated poles, the

[1] Cf. Horsley's Case V., THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, April, 1887, p. 358

stems of which, being flexible, can be placed near together or far apart as desired.

8. *Photography of the brain.* This can readily be done by an ordinarily expert amateur. Dr. Lewis and I are both of the opinion that

FIG. 10.

the exposure should be practically instantaneous with the most sensitive plates made. Even with such plates they may be under-exposed on a cloudy day. But the danger of movement by the patient and the constant oozing of the blood make it desirable to have the shortest possible exposure. Possibly the "flash powder" may be useful, but if employed the possible firing of the ether should be borne in mind. The photography is scarcely any interruption to the operation in the hands of a competent assistant. But I was disappointed in its results in both my cases (II. and III.). It gave no good details owing chiefly, I think, to the wet, glistening, curved surfaces and deep shadow at the point of excision. I would prefer to have a rapid sketch made by a good artist who understands anatomy.

9. *Drainage.* Combined tubular and capillary drainage answered best in the brain, as elsewhere. The tubing should be removed, as a rule, at the end of twenty-four hours. Whether it would have been wise to do so in my first case, with evidences of increasing pressure, is even now, in my mind, doubtful. The horsehair may be removed in three to five days. Everything should bend to the speediest possible healing of the wound, thus preventing hernia cerebri and favoring a quick recovery.

10. *Replacement of the bone.* This most interesting and valuable recent addition to our operative procedure receives further encouragement from the results of Cases II. and III. In the last the disk of bone (one and a half inches) was replaced with about fifteen fragments bitten out by the rongeur forceps. The skull is so completely restored that except for the scars and slight flattening one would not know that it had ever been trephined. Heretofore, when the dura mater has been removed, the bone has not been replaced, but Case II. shows that even then it may be done with ease by attaching it to the under surface of the flap by chromic catgut. Of course, the small pieces cannot be so utilized, so in Case III. I had a lamb in the adjoining room, and if the removal of the dura had been necessary and any large gap been made by the rongeur forceps I meant to replace the trephine button and fill up the remaining gap by another button from the lamb's skull, trimmed

by the rongeur to suit the opening. I find that the back of the lamb's skull has nearly the same curve and thickness as man's, and will give one good button from its centre or, at a pinch, two might be got from it.

I had no trouble with the large disks, and do not think it at all needful to chop them up into small fragments as Macewen did. But if the bone is to be replaced, the most minute care must be given to it from the moment of its removal to that of its replacement by one of the assistants, whose sole care it should be. I have recently had to remove a similar one and one-half inch button from a case trephined by a friend. By accident the button escaped observation for perhaps twenty minutes or more after its removal, and so lost its heat, even if it did not become septic, which seems not probable. It gave no trouble for over two months, but then produced an abscess, headache, etc., which were quickly relieved by its removal. It was entirely necrosed. It is, however, proper to say that the skull was unusually thick and almost all compact tissue, and that, soon after the primary operation, the wound had to be reöpened for hemorrhage from the scalp. Even with the utmost care, disks of bone, if chiefly of compact tissue, cannot always be successfully replaced. I recently had to remove three such, much smaller (one-half inch) buttons from one of my cases of trephining of the lower jaw. Yet Dr. J. S. Miller (*Medical News*, liii. 136) has just reported a successful case of reimplantation of one such button in the same bone.

11. *Rapidity of recovery.* Case I., in consequence of the reöpening of the wound and later complications, was long in getting well; but Cases II. and III. were out on the street on the seventh and eighth days, their highest temperatures having been 99.8° and 100° respectively; Case III. with but little, and Case II. with absolutely no pain and no medicine. No iodoform was used. I get better results without it and its abominable odor.

Thanks chiefly to vivisection and antisepsis, cerebral surgery will show, within the next few years, triumphs as exact, extraordinary, and beneficent as has abdominal surgery.

1729 Chestnut Street, August 27, 1888.

CÆSAREAN SECTION WITH OÖPHORECTOMY.

REPORT OF A SUCCESSFUL CASE.

By John G. Jay, M.D.,

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Since the earliest history of gastro-hysterotomy this operation has occupied a position of preëminent interest in obstetrical surgery. It was probably first brought to notice at a very early date, and may have had

its origin in accident, being afterward improved upon by the surgeon. The number of authenticated so-called "cow-horn cases" would lead to this supposition, and it is a remarkable fact, that eight out of eleven of them have recovered.

The operation is said to have been done by the Greeks, but only after the death of the mother. A Roman law required the section to be performed under the same circumstances—*i. e.*, death during pregnancy, but as it appears never to have been done at that day upon living women, it is probable that Julius Cæsar was not delivered in this manner as is by many supposed, for, according to Seutonius, his mother was yet alive at the time of his invasion of Britain.

The term Cæsarean operation, by which it is known, is therefore probably derived from the verb *cædere*, and those persons so brought into the world were called Cæsones or Cæsares. As it was something remarkable to have been thus delivered, great men were not loath to have it believed that they were Cæsares. Hence the term gradually became indicative of distinction and eventually the synonym of *imperator*, and even at this day the Russian and German nations call their monarchs respectively *Czar* and *Kaiser*. On the other hand, the operation might well have derived its name from being the most important one of surgical obstetrics.

The operation on the living woman, it is said, was first done about the beginning of the sixteenth century, and Bauhin states that a woman was operated upon at Siegerhausen, in Germany, about this time by her husband who was a cattle gelder; that she recovered, and afterward gave birth to several children in the natural way.

Six cases are recorded by Harris in which women have operated upon themselves, with five recoveries. Aisenstadt, of Novgorod, Russia, recently reported the sixth case, which alone was fatal.

In many of the works on obstetrics the Cæsarean section *versus* craniotomy receives full consideration, but contrariety of opinion among authors of the same as well as of different periods is so great that it is not surprising that the operation as now practised is of such recent date. As a rule, craniotomy has at all times until very lately been given by many odds the preference: gastro-hysterotomy being regarded as the *dernier ressort* of midwifery. Even in recent literature this operation is by many deprecated when the destruction of the child may save the life of the mother.

In this work on midwifery, published in the early part of the present century, Denman makes a statement to the effect that every woman upon whom the operation is done will probably die; although he speaks favorably of the chances for the child. He also says, that, "from a detestation of the apparent cruelty of the operation, it was never performed or even proposed and seldom talked of in England until about that time."

The disfavor toward the operation may well be understood when it is related that of the first thirty Cæsarean sections done in great Britain but one woman recovered. At the same time the continental surgeons were operating with wonderfully good results considering the methods then pursued, as nearly fifty per cent. of their cases are said to have recovered. This, however, is questionable. The disparity of results was no doubt due to the English aversion to the operation, which postponed the section until too late to be of benefit. At the present time the showing for Great Britain is vastly better but until very lately the maternal mortality has been as great as 79 per cent.

In the United states Dr. R. P. Harris, of Philadelphia, has with great care collected data relating to 170 cases which resulted in saving the lives of 65 women. This is, however, a frightful mortality. The figures include all operations, as far as known, which have been done in this country; those done without regard to antiseptic measures, as well as those in which improved modern methods were employed. If these cases be divided, and such as have been treated according to *strict principles of antisepsis*, with other modern improvements, be grouped, we have a very much better exhibit.

According to the same authority, of eight operations in this country in 1887 four saved the women and of the children five were also saved. In one of his letters he tells me that the operation which I shall report in this paper was the *second* Cæsarean section done in the State of Maryland and the *first* to save the life of the mother. I have recently learned that mine is the *third* in order, although the *first* successful, and the *first* Sänger. Drs. P. C. Williams and G. Farnandis did the operation at the almshouse about the year 1859. The second by Dr. James W. Butler was done December 20, 1869, and since my operation two more (Sänger) have been done in this city.

Dr. Harris mentions also five cases of laparotomy done in the State of Maryland after uterine rupture, which were therefore not Cæsarean sections. Three of these were fatal to the mother, the children being dead. One done by Dr. John H. Bayne in 1856 saved the mother; the child was dead. With similar result was an operation done by Dr. Butler in 1869.

Dr. Harris's statistics are of the greatest interest and value, and they prove what a benefit the modern or Sänger operation has been to an unfortunate class of parturients. His record of the first fifty cases in Europe and the United States is as follows:

Women saved	34
Children extracted alive	45
Women lost	16
Children extracted dead	5
Operators	31

The first fifty cases in Continental Europe alone show a still better record.

Women saved	39
Children extracted alive	48
Women lost	11
Children extracted dead	2
Operators	29

In the last half of each of these series the per cent. of recoveries is higher than in the first, and this fact is full of promise for the future of the improved Cæsarean operation. In the past two or three years the per cent. of recoveries has wonderfully increased in the United States, and there is reason to hope that it will rise still higher. The secret of this improvement in the results of gastro-hysterotomy lies in the fact that latterly greater efforts have been universally made for the employment of better methods. Men in various countries, widely separated, have been devoting their best energies to the same ends. Since the revelation of Koch and others, relative to microörganisms, all surgeons and obstetricians have been keenly alive to the importance of the exclusion of septic germs: but, besides this all-important item in the treatment of wounds, there are others, among which not the least is the acurate and proper coaptation of surfaces. It indeed seems strange that an operator would ever open a gravid uterus without making an effort again to close the incision; yet the idea of suturing the gaping wound did not apparently occur to the early operators, but contraction of the organ alone seems to have been relied upon, and until quite recently some cases have been thus treated.

The indications for gastro-hysterotomy should in every case be well assured, for the risks of the operation are by no means few even when the most perfect methods are employed. They may, however, be not so great as in craniotomy, in cases unsuitable to that operation. All authorities agree that when the conjugata vera is two and a half inches or less, delivery of a head of ordinary diameters becomes impossible without craniotomy; indeed, embryotomy may be necessary, and these expedients are more or less difficult and dangerous. Here, then, is indicated any other operation which will yield as good or better results to the mother and which may, at the same time, save the life of the child. I believe that the *improved* and *modernized* Cæsarean section is such an operation, and when there is a question as to the propriety of one or the other procedure, it should, I believe, always have the preference. This is just the reverse of universal opinion upon this question of not a great while since, and which has many supporters at the present time.

The reaction in favor of the Cæsarean section as opposed to craniotomy and embryotomy is becoming more and more decided, and men who formerly had a strong preference for the latter operations have,

since the adoption of modern methods, reversed their opinions. In the *Annual of Universal Medical Sciences*, for 1888, opinions cited from various eminent sources would appear to indicate that the sense of the medical profession is crystallizing toward a conviction that where there is a question as to the propriety of *craniotomy*, or the *modern Cæsarean section*, the latter operation is one of election.

A number of instances have been cited in which women having had the Cæsarean section performed, have subsequently become pregnant and given birth to children. The reason for the section does not appear, but it could not have been due to very great pelvic deformity, otherwise the latter deliveries through the parturient canal at full term would have been as impossible as the first. Perhaps premature labor may have been induced.

In those cases in which pelvic deformity is so great that gastro-hysterotomy, laparo-elytrotomy, or any other maternal section is necessitated, the woman ought never again to become pregnant. She ought not, if possible to prevent it, be allowed the opportunity of becoming so. The prevention of this was formerly a greater problem than at present. Oöphorectomy done at the time of the Cæsarean section is the preventative. I know that the question of its propriety elicits a difference of opinion, and in some instances circumstances may make it desirable to refrain from it; but in the main I believe the principle to be correct. More than one reason may be given for the sterilization of such cases. Recently Gusserow has spoken of the possible danger of uterine rupture in pregnancies succeeding the Sänger operation, as has been known to happen after the older methods of hysterotomy; and when there is grave uterine disease he advocates Porro's operation. Probably he would regard multiple myoma an indication for the last named procedure. The removal of ovaries and tubes or the ligation of the latter as suggested by Dr. Garrigues in a recent paper, are simpler methods than Porro's hysterectomy.

For a married woman, sterilization may be her only safeguard from equal or greater peril in the future. That peril may come speedily. In a few months she and her doctor may be again confronted by the dread alternative of the Cæsarean section, or the destruction of her unborn infant. If seen in time, the induction of premature labor would be the proper course; but notwithstanding precautions, circumstances may be such that the pregnancy is allowed to continue to maturity.

That oöphorectomy adds a pronounced degree of risk to the patient's life, I do not believe. As it may be so easily and expeditiously done, and as it removes entirely a future danger, I cannot coincide with those whose counsel is against it. Indeed, if the pelvis be very narrow and deformed, it would to me seem culpable to allow them to remain. If, on the other hand, the pelvis be sufficiently capacious to permit the passage

of a premature, yet viable, infant, the requirements might be different. Of this the operator must be the judge.

The pain in the pedicles, to which Dr. Garrigues refers in his recent instructive article on "Improved Cæsarean Section," may, I think, be easily controlled by anodynes, which are required after all operations of such magnitude.

CASE.—About twilight on the evening of October 22, 1887, I was called in consultation by Dr. E. G. Welch to a case of dystocia caused by deformed pelvis. The patient, Maria Carter, colored, aged twenty-seven, married, primipara, had, I was told, been in labor for more than a week; and since the previous Wednesday, October 19th, the pains had been frequent and very severe, recurring every few minutes. On the morning of Friday October 21st, the day before I first saw her, the membranes ruptured, and later in the day the midwife in attendance called in professional aid. The woman, I learned, is the oldest of four children, the rest of whom died at an early age, but of what diseases I could not ascertain. She is quite fleshy and of low stature; her exact height being fifty-five inches. Although she is apparently healthy now, she bears evidence of rachitis; for besides a deformed pelvis, her tibiæ are markedly bowed forward, and she has a slight lateral spinal curvature.

Previously to my seeing her Dr. S. W. Seldner had been called in consultation, and agreed with Dr. Welch that natural delivery was impossible, and that owing to the very deformed and contracted pelvis, even embryotomy would be a difficult undertaking. Under these circumstances the Cæsarean section seemed to be the procedure indicated.

Upon examination, my opinion was in accord with theirs. I found a pelvis which, as well as I could estimate, was in its conjugate diameter about one and three-fourths inches; the promontory of the sacrum projecting forward to the extent of producing this diminution and of being mistaken by the not very skilful midwife for the fœtal head. Besides this antero-posterior deformity, there seemed to be a lateral contraction, but as to the extent it was difficult to form an accurate estimate. The fœtal head was beyond the reach of the finger, this being partly due, as I afterward discovered, to the presence of a large interstitial myoma in the lower segment of the posterior uterine wall.

I endeavored to induce the patient to be transferred at once to the Hospital of the Good Samaritan, as her surroundings were much otherwise than favorable for an operation such as the one contemplated, the house in which she lived being an ordinary negro tenement, by no means neatly kept, and, as may be inferred, far from aseptic. Failing to obtain her consent or that of her family to have her removed to the hospital, I found that if I operated I should be compelled to do so where she was, which seemed more humane than to leave her to her fate.

Owing to the lateness of the hour, it being already dark, and to the fact that there was no gas in the house and no other means of obtaining adequate illumination; also that it was essential to cleanse the premises and make other preparation; it was found quite impracticable to do the operation that night, and although I was fully aware that there was no time to be lost, I concluded that the chances of success would be greater by waiting until next morning. In the meantime I ordered that the dusty carpet be removed, the floor scoured, and the walls and ceiling

whitewashed. Upon my arrival on the following morning I found that my directions had not been fully carried out and that the walls remained uncleansed; but as it was now too late to do this I was obliged to operate in an apartment only *partially* prepared and consequently under circumstances quite unfavorable.

I mention these facts to illustrate the difficulties that are frequently encountered in the houses of patients of this class, and also to show that it is not absolutely necessary to success, as some have seemed to think, that this operation when performed in a large city be done in a hospital.

On the morning of the operation the patient was in a much more nervous and exhausted condition than on the previous evening; she realized the peril she was in and her mental state was that of despair, with a desire for a speedy termination of her suffering.

Having determined upon the so-called Sänger method, the patient was anæsthetized with chloroform, and with the assistance of Professors Ashby and Winslow, and Drs. Welch, Seldner, and Germon, the operation was performed.

The preliminaries consisted of catheterizing the bladder, thoroughly cleansing the abdomen with soap and water, and, after drying, again washing with a solution of mercuric bichloride 1 : 2000. Towels wrung out of the same solution surrounded the exposed abdominal surface. A dilute solution 1 : 6000 was used for the sponges. The hands of the assistants were thoroughly cleansed with soap and water and then washed with a solution of 1 : 2000. The instruments were immersed in a solution of carbolic acid of two and a half per cent. The sutures, both catgut and silk, were aseptic, and in every other respect the operation was done with as great regard to antiseptic principles as circumstances would permit.

The abdominal incision was made in the linea alba from the umbilicus for five and a half inches toward the symphysis pubis, and was afterward extended upward for an inch and a half to the left of the umbilicus.

The hemorrhage from the abdominal incision was slight, and was controlled by compression forceps. The peritoneum was carefully opened and slit with a probe-pointed bistoury between the index and middle finger to the extent of the abdominal incision. It was not possible to lift the gravid uterus from the abdominal cavity through the incision of the length which I had made, and I hesitated to extend this, lest escape of the intestines should prove troublesome. This accident, however, did occur after removal of the infant, but they were covered by warm cloths wrung out of dilute carbolic solution and replaced as speedily as possible.

Upon examination of the uterus the placenta was found to be attached to the anterior wall, so that its section could not be avoided. Except the anterior surface beneath which the placenta was attached, the uterus was thickly studded over with fibroids of various sizes from that of a filbert to nearly the dimensions of a pullet's egg. Even in the excepted area there were several. Some of these tumors were intramural, others subserous, and several of them were distinctly pedunculated.

Before opening the uterus it was carefully pressed upward into and maintained in the abdominal incision to prevent the escape of the intestines and the flow of blood into the ventral cavity, neither of which was

entirely successful. Section of the uterus was rapidly made to the extent of five and a half inches, upon which there was a deluge of blood. This was of short duration, as I introduced my hand, rapidly detached and removed the placenta, and compressed the funis to prevent further loss of blood from the child. As quickly as possible the infant was extracted, head first, and passed to an assistant; at the same time, another, introducing his hand into the abdomen, grasped the uterus around the supra-vaginal cervix and in this manner constricted it until an elastic tube ligature was applied. This could not be done until the infant had been extracted.

The infant, a well-developed male, showed but feeble signs of life, and although efforts were made to resuscitate it they were of no avail, and it died after having given a few gasps.

As soon as the placenta was detached the bleeding to a great degree ceased and was thereafter easily controlled.

The fibroids being so numerous I considered the propriety of removing the whole organ and appendages by Porro's method; there being a question as to whether the presence of so many tumors might not unfavorably influence the result. I concluded to follow what I considered as perhaps the safer course and allowed the uterus to remain. Before dealing further with the uterus the broad ligaments were transfixed, stout double ligatures passed and secured and with the curved scissors both ovaries and tubes were removed. After dusting the cut surfaces of the pedicles with iodoform, they were dropped back into the abdominal cavity.

Attention was now again turned to the uterus. On the left side of the incision and barely escaping section there was an intramural myoma about the size of the last phalanx of the thumb, the presence of which necessitated resection of the uterus to an extent equal to its width. The peritoneum was therefore dissected from the uterus at the site of the myoma for about an inch, this dissection diminishing in width as the ends of the incision were approached. A segment of the uterine wall corresponding to the extent of the peritoneal dissection and slightly bevelled toward the median line was removed, as well as a redundant strip of the membrane itself. On the right side the peritoneum was dissected up to the width of one-third of an inch and the muscularis was bevelled as on the opposite side. A continuous carbolized catgut suture was next employed to close the mucous surface and including the endometrium. The second uterine sutures were interrupted, eleven in number, and of stout braided carbolized silk. These were entered about half an inch from the incision of the muscularis and extended down to, but did not include, the endometrium. On the opposite side the sutures were brought out upon the peritoneal surface at the same distance from the incision. The ends were drawn and clamped, but left untied until the peritoneum had been carefully closed by thirteen fine silk interrupted sutures which were passed in and again out of the peritoneum on each side and which brought the opposing serous surfaces into close and exact apposition. After this the deep sutures were ligated. The slight oozing of blood which followed the removal of the elastic tube ligature was absorbed by a large soft, flat sponge; it was of no special moment and soon ceased.

After thoroughly cleansing the peritoneal cavity with water of a temperature about 120° F. and dusting the line of uterine incision with

iodoform, the raw surfaces of the abdominal parietes being lightly dusted with the same, they were brought together. This too was effected by three sets of sutures. The first was continuous, of fine carbolized catgut and included the peritoneum only; next, twelve deep, interrupted, of stout braided silk; and lastly, a continuous superficial suture of fine silk for the greater perfection of dermal coaptation. In the lower angle of the wound, a rubber drainage tube seven-sixteenths of an inch in diameter, and extending down to Douglas's cul-de-sac, was inserted. The line of incision was abundantly covered with iodoform powder and a compress of iodoform gauze, and relieved from tension by four broad strips of improved adhesive plaster. A thick layer of borated cotton secured by a roller bandage completed the abdominal dressing.

After washing out the vagina with warm carbolized water, the external genitals were well dusted with iodoform and a pad of borated cotton applied to absorb the discharge; with directions to renew this when required.

The operation occupied nearly two hours, much of this time being consumed in the insertion of the numerous sutures. The patient was put to bed and bottles of hot water and hot smoothing irons applied. She rested well, and late that night was comparatively comfortable with fairly good pulse and temperature slightly above normal. On the following morning, October 24th, the pulse was 132 temperature 99.6°. She had a slight amount of nausea, but very little pain, that being controlled by morphia gr. one-fourth, which was administered with quin. sulph. gr. iij, by suppository every three hours. The urine was drawn with a catheter, and this continued to be done twice daily for several days, until she could pass it herself. She was allowed crushed ice during the night, but nothing more. In the morning she took a small quantity of black coffee and later an ounce of milk with lime water and ice. This was repeated several times during the day, and in the evening as she seemed faint she was given a little brandy with mint and ice.

The lochial discharge was of the normal amount and appearance and without any odor of decomposition. At each visit, which was at intervals of five or six hours during the first few days, the perineal pad was changed, and the pubes and vulva dusted with iodoform. At a late hour in the evening of the day following the operation the pulse was still 132 and the temperature had risen to 101.2°. Early on the following morning, October 25th, the pulse had fallen to 108, temperature to 100°. In the evening at 6 o'clock the pulse was 118, temperature 99.8°.

For several days the temperature ranged from 99.8° to 101.4° and even after three weeks was at times slightly above the normal.

On the third day after the operation she was again taken with nausea and vomited several times. This was relieved by Creasot. gtt. j; Acid. hydrocyan. dilut., gtt. iv; Aq. calcis, ℥ss; several doses given during the day.

Her nourishment for two weeks consisted principally of beef tea, peptonized beef, milk, and chicken boiled to a jelly. During the first ten days she several times was taken with a depression or faintness about 3 A. M., for which I ordered brandy, ammonia, and larger doses of quinia,

with relief. This condition was not due to want of nourishment as might be supposed, for it would occur when she had taken food only half an hour previously. Often in serious illness the vitality of patients seems lowest about this hour, and so it was with her.

On the 28th of October I drew the drainage tube partly out, and cut off about an inch and a half of it. October 30th another portion of the tube was removed, and the next day the remainder. On this day also the abdominal dressing was entirely changed, and the wound was found closed by primary union, except just below the umbilicus, and of course at the lowest end where the tube had been. All the sutures were removed except three at apparently weak points, and fresh dressing applied. The remaining sutures were removed at the next dressing, after the lapse of four more days.

The following is a record of the pulse and temperature for sixteen days after the operation.

Date.	Pulse.		Temperature.	
	A. M.	P. M.	A. M.	P. M.
October 23d . . .	. . .	95	. . . .	98.7°
" 24th . . .	132	132	99.6°	101.2
" 25th . . .	108	118	100	99.8
" 26th . . .	108	105	100	99.3
" 27th . . .	110	119	100.5	101
" 28th . . .	101	105	100.6	100.8
" 29th . . .	109	110	100	101.4
" 30th . . .	100	100	100.8	100.8
" 31st . . .	95	112	99.6	101.3
November 1st . . .	93	90	99.3	100.8
" 2d . . .	88	95	100.2	100.8
" 3d . . .	96	97	100.2	101.3
" 4th . . .	90	95	99.4	100
" 5th . . .	98	98	100.1	101
" 6th . . .	89	93	100.2	100.5
" 7th . . .	80	. . .	99.2	. . . .

For about two or more weeks the temperature remained somewhat above the normal, and on two days, November 15th and 16th, it rose to 100.2°. On the 19th it was 98.6°. From that time it continued about normal. From the opening where the tube had been a small amount of purulent fluid continued to flow for several weeks, when it ceased, and the wound entirely closed.

During the latter part of the time that the tube was in the wound, a quite sensitive induration developed in the left hypogastrium. This induced me to remove the tube, as I was convinced that it was the cause of it. The induration then became less sensitive and finally subsided.

That the drainage tube was the cause of the continued elevation of temperature as well as of the local inflammation I have no doubt. It

was probably the cause also of the faintness or depression above referred to. In view of this, the propriety of having used a drainage tube at all may be questioned. My reasons for inserting it were several. On account of the numerous fibroids throughout the uterus I was not greatly confident that the incision in this organ would satisfactorily unite. Also because the abdominal cavity had been opened in an atmosphere not the most sanitary and the peritoneum had remained thus exposed for a considerable time, I was fearful of peritonitis, and deemed it safer to afford this vent. Finally, because abdominal drainage is advocated by Kehrer in this transverse section of the lower uterine segment.[1]

Only a few days elapsed before I changed my opinion concerning the propriety of using the tube, and it became the source of the greatest anxiety to me. I felt that it should not have been put there, and yet I feared to withdraw it, lest the irritation which it had already caused might continue, and having no direct vent, a deep accumulation of pus be the result. I therefore withdrew it very cautiously and by degrees, requiring four days for its removal. The canal remained open for a time, moderate purulent discharge continued the while and eventually cicatrization followed.

I freely express my belief that the drainage tube was not necessary, and that it rather retarded the favorable progress of the case. It was of soft rubber, had been treated antiseptically, and was liberally fenestrated.

I think that in a similar case I should not use a drainage tube again, but if I concluded for any reason to do so, I should use a tube of glass, or better, perhaps, of decalcified bone.

The location of placental attachment in this case was probably influenced by the multiple fibroid condition of the womb, as these tumors were found numerously disseminated throughout the uterine parietes with the exception of the area occupied by the placenta. The largest myoma was about the size of a turkey egg, though flattened, was in the posterior lower segment of the uterus, and was intramural.

It is well known that the African race in this country is much more subject to myoma of the uterus than the white. There is abundant evidence of this in communities where there is a large negro population. I have, however, never seen a case in which they were nearly so numerous as in this.

The location of the placenta, the necessity of cutting through it, and the sudden profuse hemorrhage which followed, lead to an inquiry of the probable cause of death of the child. I think it is not difficult to understand that the relative loss of blood from incision of the placenta is greater to the infant than to the mother. The relation of such a case to an *ordinary* Cæsarean section, with placenta *elsewhere* attached, would

[1] Lusk. Edition 1885, p. 430.

appear to be somewhat the same as one of placenta prævia to a normal delivery *per vias naturales*, in which two out of three children are born dead, and about one of four mothers lost.[1]

It is difficult to estimate the exact proportion of the several causes which, operating upon the infant, occasioned its death. The three principal were, the prolonged and severe uterine contractions (these having been sufficient to distort the head by driving it against the deformed pelvis), the exhausted condition of the mother, and, lastly, the profuse placental hemorrhage.

I shall say a word in regard to suturing the endometrium, as this is not usually done and is generally advised against.

To make the deep or main sutures include the thickened mucous membrane would be a gross fault, as contraction of the muscularis would almost certainly cause them to cut through this soft and fragile coat, thus leaving the sutures lax and the wound gaping, with most serious dangers from various sources. If, however, the suturing include the endometrium alone, it excludes the lochia from the wound and makes the closure of the internal aspect of the incision more secure. The only objection, I think, is the additional time required for it.

The separate suturing of the abdominal peritoneum I had done before and had also seen it done in several laparotomies by my colleagues, Professors Winslow and Ashby. With a continuous suture it requires very little time, and as peritoneal surfaces when thus brought in contact unite in so short a while, the abdominal cavity is in this way shut off from the external wound, and from danger. Then if from any cause primary union does not ensue, if the abdominal sutures should by any means become lax, or if collections of fluids occur in the line of incision, the abdominal cavity is closed and the discharge escapes from the external opening.

A point of interest in the subsequent history of this case, is that on two occasions, the first about two months after the operation, the second only three weeks since, she had a flow resembling in every way the catamenia.

In regard to her marital relations, she states that they are the same as before the removal of the ovaries, and that she experiences no diminution of sexual inclination.

At this time, more than seven months after the operation, she has increased largely in flesh, and her health and strength are excellent.

JUNE 2, 1888.

[1] Lusk's Midwifery. Edition 1885, p 593.

A CASE OF FOCAL EPILEPSY SUCCESSFULLY TREATED BY TREPHINING AND EXCISION OF THE MOTOR CENTRES.[1]

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Medical Report by Dr. Lloyd.

The following case was admitted into the nervous wards of the Philadelphia Hospital under the writer's care, early in the past spring:

J. W. G., aged thirty-five years, American born. Mother died of phthisis, father of paralysis. Patient has had the usual diseases of childhood. He denies positively ever having had any venereal disease. When fifteen years old he was struck on the head with a ball-bat, from which blow he became unconscious and was confined to bed for one week. Further details of his condition at that time are not obtainable. His fits did not begin until six years after. Fourteen years ago he had his first seizure while asleep. In this he bit his tongue. The question arises whether this was his first fit, or whether really it was not rather his first *discovered* fit by reason of the wound of his tongue. Probability is lent to the latter supposition by the fact that many of his seizures have been nocturnal. Nine months after this first discovered fit he had his first seizure during the day. After this time he had them varying in number and intensity until admitted to the hospital. He described his seizure as follows: He would have a decided sensory aura commencing in the fore and middle fingers of the left hand, extending up the arm, through the neck to the left side of the head, when the convulsion would begin. He has stopped the aura at times, and thereby the fit, by tightly compressing the wrist. The aura lasted quite an appreciable time, and gave him ample notice of the explosion.

During the time of the patient's early sojourn in the hospital his seizures were mostly nocturnal. He was conscious of many of these. He said they lasted but a short time, involving, as a rule, only the left face and arm, and that he did not always lose consciousness. He also said that he has had occasional attacks involving both sides of the body, but his accounts of these were not clear, and it is probable that his consciousness was lost or obtunded in these greater attacks. The few minor attacks, which happened in the daytime, occurred during the absence of any trained or intelligent observer, but several of his fellow-patients confirmed in the main his own account.

In order to render the diagnosis more positive and the description more exact, Dr. F. W. Talley, resident physician, began a systematic nocturnal watch upon the patient, without the latter's knowledge, sitting

[1] Read before the American Neurological Association, at the meeting of the Congress of American Physicians and Surgeons, Washington, D. C., September, 1888.

up in constant vigil several nights in succession. During the first night nothing was observed, although the patient said in the morning that he was sure he had had one or two slight seizures. In the second night Dr. Talley succeeded in observing a characteristic attack, which he describes as follows:

The fit commenced in the left arm. The fingers were flexed over the thumb, the hand flexed at the wrist, the forearm flexed upon the arm. The head was drawn over to the *right* side, the right arm and leg then became rigid. The head soon began to rotate to the left, the fingers of the left hand relaxed, the mouth opened and was drawn to the left side with the right angle depressed. As soon as the face reached the median line a series of clonic spasms began in the left arm and left side of the face. (In two of his most severe attacks clonic spasms were observed in his right arm.) The pupils were widely dilated and fixed. Consciousness appeared to be preserved, partially, at least, throughout. The spell was of very brief duration. Following the fit there was well-marked paresis of the left arm and left side of the face.

These memoranda by Dr. Talley very faithfully describe the main features of the attack. The frequency of the seizures, on account of which the patient had applied to the hospital, increased, and they occurred both day and night, so that they were soon observed by the nurses, members of the resident staff, and by several of the neurological and surgical staffs, who were called in consultation. The greatest number of seizures recorded in one day was twenty-eight, at which time the patient seemed to be passing into a veritable epileptic status, being confined to bed, and becoming very dull and altered in his mental condition.

The paresis of the left face and arm at this time began to be very noticeable. The face was relaxed, the angle of the mouth depressed, and the right or sound side drawn over perceptibly. The orbicularis palpebrarum muscle was not involved. The tongue was not paralyzed (?). The pupils were equal and responded to light and accommodation. The arm was perceptibly weakened, especially in the flexors of the fingers and wrist, the biceps, and the deltoid. These muscles were not wasted, and did not present any reactions of degeneration. On those days when the patient's fits were infrequent this paretic state of the muscles improved considerably in the longer intervals, and was most marked just after a seizure. There was no alteration or retardation of tactile sensibility. An examination of the eye-grounds at this time by Dr. de Schweinitz revealed nothing indicative of organic cerebral changes.

The onset of these seizures, upon which special stress was laid both in the diagnosis and subsequent surgical treatment, was always the same, and verified by numerous observations. The left hand, especially the two fingers, was the seat of the signal symptoms, both sensory and motor, and, however varied the extent of the convulsive wave in different seizures, there was never any variation from this constant initiation. The convulsive area varied considerably, from a slight twitching of the affected face and arm, with no apparent loss of consciousness, to an almost universal bilateral convulsive explosion, always worse, however, on the left side, with decided obscuration of consciousness. This loss of consciousness was not always as great as it appeared, for once after a severe seizure, during which I asked him some test questions, he answered them correctly as soon as he regained control of his muscles. The patient

complained but little of headache and said it had never troubled him: the slight degree of it from which he suffered in the hospital appeared to be an effect of his rapidly increasing seizures. He had no gastric irritability whatever.

It seemed very evident to my mind in studying this case that we had a focus of discharge in the region of the junction of the middle and lower third of the ascending frontal convolutions on the right side, possibly involving also contiguous portions of the ascending parietal convolutions in which experiment seems to have demonstrated centres for the hand and wrist. The nature of this irritative lesion did not appear very clear to me, although I was inclined to think it might be old scar tissue and thickened membranes, the results of his injury. I considered the long duration of his affection to contra-indicate a tumor, especially as he had neither headache, vertigo, vomiting, nor changes in his eye-grounds; although the focal nature of the discharge and the more or less constant paresis of the convulsed muscles were very suggestive of a new growth. I saw no reason to doubt the man's sincerity on the subject of syphilis, but I classed him with the rest of mankind and gave him the benefit both of the doubt and the iodides. He did not improve. A consultation was held with my colleague, Dr. John B. Deaver, of the surgical staff, and an operation discussed. At a subsequent consultation with Drs. Deaver and Sinkler the operation was decided upon, with the concurrence also of Drs. Mills, Dercum, and de Schweinitz, who kindly saw the case by invitation.

On the 12th of June Dr. Deaver operated in the presence of the above-named physicians and with the assistance of Dr. J. William White. The details of the operation and the surgical aspects of the case will be narrated by Dr. Deaver. It had been decided beforehand that the incision should be simply an exploratory one in case nothing was discovered in the membranes or cortex, unless by faradic stimulation we should succeed in locating the irritative area in the cortex, in which case it should be cut out. By following Reid's and Horsley's lines Dr. Deaver exposed, with an inch and a half trephine, an area which appeared to include both sides of the central fissure (Rolandic) in the region of the junction of the lower and middle thirds of the ascending convolutions. This area was afterward much enlarged, especially in an anterior direction, by the Hopkins' modification of Rongier's forceps. Nothing abnormal whatever was discovered in the bone, membranes, or cortex by gross inspection The difficulty of identifying the parts was so great that exploration was soon begun with a faradic current, and with very gratifying results. Upon faradizing a point back of the fissure of Rolando, more properly the wrist centre, according to Ferrier, muscular contractions occurred as follows: turning in of the thumb on the palm, flexion of the fingers, flexion of the wrist, extending to flexion of the elbow (biceps action). I cannot say that it was verified topographically—*i. e.*, by appearance of fissures and convolutions seen in the wound, what exact centres were here excited. It was behind what appeared to me to be the Rolandic fissure. The difficulty of identifying fissures and convolutions in a small

trephine wound appears to me to be extraordinary. What is of greater importance was, however, here accomplished; the reproduction of the exact muscular movements which occur in the fit. At a point farther front and below, and in front of the fissure seen in the middle of the wound (Rolandic?), faradic stimulation caused marked contraction of the face-muscles of the affected side. The mouth began to contract, and was drawn toward the left side with a tremulous motion, and soon the tongue began to protrude toward the left corner of the mouth. Soon the left thumb began to be contracted and adducted into the palm; then the fingers were contracted into the palm and about the same time the face muscles began to contract more actively, while the head was drawn to the left side, and the left eyelid began to work. At the same time the hand was gradually closed, and contraction of the forearm and arm began, while the latter was drawn from the side to an angle of forty-five degrees (deltoid action), and contractions of the biceps occurred. At no time in the course of these faradic applications, anywhere within the area exposed by the trephine and forceps, did any contraction of the leg muscles occur.

I observed especially, in making these applications of faradism to the cortex, that considerable areas of it did not appear excitable at all to the strength of current employed, at least did not give muscular response anywhere, while the two comparatively narrow points above mentioned reproduced almost exactly the muscular contractions of the epileptic seizures, and seemed to stand for more "centres" than the diagrams of those who have experimented would allow to any such narrow areas.

In the absence of any visible organic lesion it was decided to excise these portions of the cortex. The possibility of a sub-cortical tumor was not ignored, but there was absolutely no evidence of such in any alteration of the vascular supply or of the consistency of the brain tissue. The parts did not bulge into the wound, nor was the color of the gray matter in any way changed. Accordingly Dr. Deaver excised from the region back of the central fissure a portion about twelve millimetres square carrying the incision well down to the white matter. Two smaller portions were removed from the excitable region anterior to the central fissure. Further exploration by means of these incisions failed to detect any tumor. My attention had not been called at that time to the distinction which Franck[1] makes between the faradic excitability of the gray and that of the underlying white matter. This distinction is that the gray matter gives rise to a series of clonic spasms in the related muscles, epileptiform in character, continuing even after the faradism is withdrawn, while the white fasciculi, when faradized, cause a tonic contraction which ceases at once on withdrawing the poles. I am quite positive that the contractions caused in our patient by stimulating the gray matter were epileptiform—and if my memory serves me,

[1] Leçons sur les Fonctions Motrices du Cerveau, etc., par Le Dr. Francois Franck, Paris, 1887, p. 107.

after this lapse of time, the white fasciculi at the bottom of the wound were also touched and caused but a momentary tonic contraction.

The patient's condition after the operation may be briefly epitomized as follows, prefacing with the remark that he was watched by competent observers day and night and the nursing records kept in a book.

It was observed from the first that he slept with his left eye partly open. The legs moved freely and were never paralyzed. The left arm was markedly paretic, lying quite flaccid by his side; he would occasionally raise it by taking hold of it with his right hand. His left face was also paretic. Late on the first night he had his first convulsive movement; it was only a slight twitching of the left side of the mouth which was thus drawn to left side. These twitchings of the face, accompanied occasionally by twitching of the left hand and forearm, continued at intervals during the first six days, when they ceased, and the patient has never had any convulsive movement whatever since. They were not so severe as before the operation, nor so widespread. About the third day there was some stiffness of the fingers, which may possibly be explained by irritation of the white fasciculi during the process of healing of the cortical wound. There was at this time according to the nurse's records, a difference in temperature of the two sides, the left axilla being from one to one and a half degrees higher. After one of his twitching spells the patient spoke of the spells returning, but he never mentioned his aura.

On the fifth day his muscular condition was as follows: The flexors of the wrist and fingers were almost quite paralyzed. The biceps was much weakened. The pronators and supinators were paretic. When told to raise the arm he would reach for it with his sound hand, and when restrained in this he would raise the affected arm with a sort of fling and evidently with the aid mostly of the shoulder and chest muscles. All his attempts to move the paralyzed muscles, especially to close his fist, were accompanied by analogous movements of the right arm. All the muscles of expression of the left face were affected, as well as the left side of the occipito-frontalis. He had control of the orbicularis palpebrarum. When he laughed the muscles of the paretic side appeared to respond almost as well as those on the sound side; which seemed to show that a cortical paralysis is not absolute as far as a bilaterally associated movement is concerned. The patient is right-handed and has never been aphasic.

From about the sixth until the eighteenth day the patient cannot be said to have been at any time in his normal mental state. He became dull, then lachrymose and incoherent, and for a part of the time had marked maniacal delirium with hallucinations of sight and hearing. The surgical condition did not seem adequate to account for this. The operation and subsequent treatment had been conducted with strict antiseptic precautions, and the patient never had a serious rise in temperature. There appeared to be headache at times as he frequently attempted to pull off his dressings. There was at this time much œdema of the scalp. While he was at his worst there was some priapism, and one of the resident physicians was confident that the patient had masturbated. I doubt if the patient in his condition at the time was conscious of it. The pupils were dilated and the eyes expressionless. There was once involuntary passage of urine. During his most

delirious and restless stage it was thought that he did not move his left leg as much as the right, but if so, this was the only time the leg was affected. His left face became much more flushed than the right. From this ominous condition he began gradually to improve toward the end of the third week, until he could sit up and so gradually began to get about. By the end of the fifth week he was practically well, and had recovered some of his lost muscular power.

The following memoranda have been made quite recently (three months after the operation) of the patient's condition. He has had no convulsive seizure, whatever, since his convalescence.

Sensory condition. (Patient blindfolded.) In the left, or affected, hand, he feels the slightest touch with the blunt points of an æsthesiometer. There is no retardation. On the forefinger he does not descriminate the blunt points one inch apart, but he tells the sharp points one-quarter inch apart. In the other fingers and on the right hand he discriminates better. With weights varying from *two to twelve* ounces patient is able to tell the heaviest by cutaneous pressure as well on affected as sound side. (The paralyzed hand has a more delicate skin from disuse.)

The patient is not able to distinguish form when an object is placed between his forefinger and thumb; thus he appears quite unable to tell a small square object, a silver quarter, a silver dollar, a small flower, or a penknife. It is evident, however, that this is not a sensory but a muscular defect, because his fingers are still so paretic that he holds these small objects in the most awkward way, and cannot move or twist them about in his fingers; hence he is not able to bring his sensory nerve endings in rapid contact with the outlines of these things. This cannot, therefore, be quoted as a proof that muscular sense is in the motor cortex. His sensation to pain and heat is perfect.

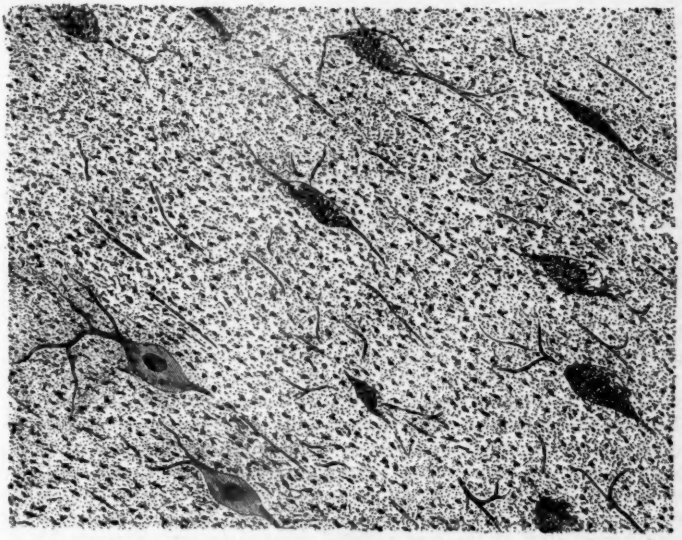
Motor condition. With a dynamometer his right hand registers 130, his left hand 20. He makes a great effort, straining even with his facial muscles. The paretic face is slightly flushed. He says there is no difference in the sweating. In the left face the tactile sense is quick and perfect. He cannot close the left eye by itself, but closes both together—a further evidence that bilaterally associated movements are not lost in cortical paralysis. The left face is still markedly paretic and the tongue deviates to the left. The muscles especially paralyzed in the arm are the flexors of the fingers. The forefinger and thumb are notably weak and awkward. He has good control of the flexors of the wrist. The biceps contracts firmly. He says he has a feeling of weakness about the shoulder, and his arm moves awkwardly, but the deltoid and individual muscles are apparently about normal. The regain of power is rather greater than was expected.

Dr. Allen J. Smith makes the following report of the appearances of the excised tissue:

"Three pieces were referred to me for examination; one governing arm alone and the other two arm and face movements. Stained by Weigert method. Those sections from piece governing arm alone (post to fissure of Rolando), each showed numerous foci of infarction, apparently recent and possibly due to some violence to the tissue during operation. There was possibly some degeneration in the cortical substance, but at most very slight. In the large pieces governing arm and face (taken from anterior to fissure of Rolando) there is distinct degeneration of the large

multipolar pyramidal cells, with the same foci of hemorrhage as in the smaller pieces. A number of these large cells seem to be in a condition approaching fatty metamorphosis, and small granular bodies, like fat

FIG. 1.



Microscopic drawing from portion excised posterior to fissure of Rolando, showing granulation and shrinking of large multipolar motor cells. (Weigert stain) (Drawn by Dr. Allen J. Smith.)

drops, make up the bulk, which is less than usual, and in most cases shrunken away from the walls of tissue about the cells. These degenerated cells refuse to take the stain as well as their comrades that are undegenerated."

In closing the account of this case it seems proper to offer a few special observations. As far as I am aware, there have been two cases operated on in which no discoverable lesion was present and in which the irritable area was mapped out with faradism and removed. There may, of course, be others. The two to which I refer are one of Mr. Horsley's cases,[1] and one operated on by Dr. Keen, of Philadelphia. The propriety of the operation is to be decided upon in individual cases, and cannot yet be made the subject of a general rule; it must depend largely upon special features, as, for instance, the strictly focal character of the fits, their severity and frequency, and the extent to which they destroy usefulness or jeopardize life. Macewen[2] discusses the propriety of removing

[1] British Med. Journ., April 23, 1887. [2] British Med. Journ., August 11, 1888.

large wedges of brain-cortex, and lays much too great stress, it seems to me, upon the evils of producing hemiplegia in trying to cure fits—to which it may be said, in the light of this case that, first, in curing focal epilepsy it may not be necessary to cut out such large wedges as to produce hemiplegia, and, second, the evils of a partial monoplegia are certainly not to be compared with the direful effects of frequently repeated epileptic seizures.

Surgical Report by Dr. John B. Deaver.

J. W. G., on June 11, 1888, the day previous to the operation, had his bowels moved freely with a saline purgative; his urine carefully analyzed and examined microscopically, showing it to be normal; and his chest examined with negative results. He was given a warm water bath, followed by a boric acid bath, then the entire scalp was closely shaved, washed with turpentine and scrubbed with soap and water, then washed with ether and alcohol, when it was enveloped in a towel wrung out of 1 : 1000 solution of the bichloride of mercury. Here, I feel justified in saying that part of the success of all operations is attributable to the careful preparation of the patient. During the operation the following day, June 12th, the most strict antiseptic precautions were observed.

Operation, June 12th, 11 A. M. The patient was placed on the table for operation. A hypodermatic injection of one-quarter of a grain of sulphate of morphia was given immediately before the anæsthetic was administered, the object of this being to contract the arterioles and thus lessen the amount of bleeding. Chloroform was administered until the patient was fully under its influence, when sulphuric ether was substituted and continued throughout the operation. In the presence of the neurological staff of the hospital, and assisted by my colleague, Dr. J. William White, I first mapped out upon the scalp of the right side of the head, the seat of operation, the fissures of Sylvius and Rolando by using Reid's lines (see *Lancet*, 1884, p. 359), which I will describe. First, draw a line, which runs from the lower border of the orbit through the centre of the bony meatus of the ear. To find the fissure of Sylvius, draw a line from a point one and one-quarter of an inch behind the external angular process of the frontal bone to a point three-quarters of an inch below the most prominent part of the parietal eminence. Measuring from before backward, the first three-quarters of an inch of this line will represent the main fissure and the rest of the line the horizontal limb. The ascending limb starts at the point indicating the termination of the main fissure—*i. e.*, two inches behind the external angular process, and runs from this vertically upward, for about an inch. The fissure of Rolando is found by drawing two lines from, and perpendicular to, the base line to the top of the head, one passing through the depression in front of the ear and the other through the posterior border of the mastoid process. The fissure of Rolando is now represented by a line drawn from the point of intersection of the posterior vertical line with the line connecting the nasal eminence with the external occipital protuberance, indicating the great longitudinal fissure, to the point of intersection of the anterior vertical line with the line representing the fissure of Sylvius, upon either side of which are the ascending frontal and parietal convolutions containing the centre we wished to remove in this case.

I prefer Reid's lines to Broca's, Lucas Championnière's, Hare's, or Wilson's method of locating the fissures, as I have proven them upon the cadaver to be quite as correct as any of the others, and I think simpler and more comprehensible; and again, as they map out more fissures than do the others, as brain surgery advances they will be more useful. Over and a little in advance of the middle third of the line representing the fissures of Rolando after all the layers of the scalp, including the periosteum, had been dissected up by making a large horseshoe-shaped flap, with its convexity downward and forward, thus favoring drainage, a trephine one and a half inches in diameter was applied to the skull and a section of bone corresponding in size to that of the trephine removed. Thus far both the soft parts and the bone were perfectly normal, there being not the slightest evidence of depression of the latter. The dura mater, which now presented at the bottom of the wound intact and normal, was incised and reflected, thus laying bare the arachnoid and pia mater, both of which membranes to the naked-eye appearances were healthy. Before incising the hemisphere (to make sure we were over the proper area) Dr. J. Hendrie Lloyd applied electrodes which had been wrapped with sublimated cotton, and which was lying in a 1 : 1000 solution of the bichloride of mercury, to the surface of the brain thus far exposed, with the result of bringing about movement of the fingers and wrist but not of the forearm, when I, with a pair of

FIG. 2.

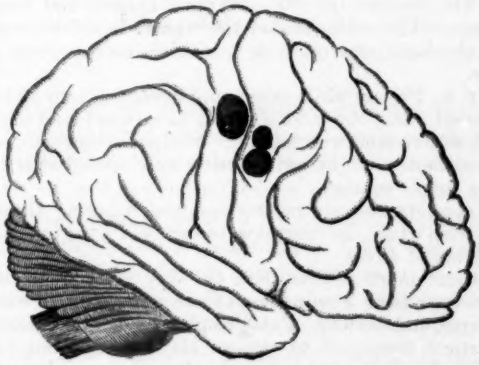


Diagram showing relative position of portions excised. (Drawn by Dr. Allen J. Smith.)

Hopkins' modification of Rongier's forceps, cut away several small pieces of bone from the anterior margin of the opening made by the trephine, Dr. Lloyd again applied the electrodes when the forearm was flexed and supinated, the angle of the mouth elevated, and the face muscles contracted. A saturated solution of boric acid containing four per cent. of hydrochlorate of cocaine was now applied to the arachnoid and pia mater to contract the bloodvessels of the latter membrane. With an ordinary sized scalpel, held perpendicularly, three pieces of brain tissue, each three-quarters of an inch in depth, were removed, one-half an inch

square in size, back of the fissure of Rolando, and two smaller portions anterior to the Rolandic fissure.

The cut vessels of the pia mater were ligated with fine juniper-oiled catgut, and hot water applied to the surface to check the oozing; the latter proved to be very efficient. A few strands of heavy juniper catgut were placed in the bottom of the wound and the flaps of the dura mater approximated over it and sutured with catgut. Again, a few strands of heavy juniper catgut were placed in the wound, resting on the sutured dura mater, the skin flaps approximated and sutured with silver wire. The wound was dressed antiseptically (bichloride of mercury being used), and the patient sent back to the ward.

The temperature of the patient after the operation was 97° Fahrenheit; in the evening of the same day 99°; pulse 98; respiration 15. Ordered milk and lime-water.

June 13. Temperature 99⅘°, pulse 94, respiration 16. Dressings not soiled; bowels moved slightly. Ordered potass. bromide, gr. xx every four hours.

14th. Dressings slightly stained; wound dressed, when found to be completely sealed. No discharge. Pulse, respiration, and temperature normal.

15th. Dressings not disturbed. No pain. Pulse, respiration, and temperature normal.

16th. Dressings slipped. Wound had to be dressed. No discharge.

17th. Patient not quite so well; is restless, showing some evidence of cerebral irritation. Complains of some pain in the head. Pulse 84, respiration 16, temperature 100°. Wound dressed and found healthy. No discharge. The scalp behind the wound is œdematous. Ordered ice-bag to the head, and calomel, ½, with Dover's powder, gr. ij, every three hours.

18th, 11 P. M. Patient while asleep and dreaming tore off his dressings. Wound dressed, when the inner dressing alone was found slightly stained with bloody serum, otherwise healthy. Scalp still œdematous. Patient's general condition much better. Bowels were moved after the administration of a simple enema.

19th. Wound dressed, six sutures removed, allowing three to remain. The points from where the sutures were removed were touched with solid stick of nitrate of silver.

21st. Patient more restless than the day previous. Pulled at the dressings, necessitating a redressing of the wound, which was found free from discharge, and healthy. Pulse, respiration, and temperature normal.

25th. Patient attempted to remove his dressings, but was not successful. The dressings were removed, when the wound was found to be healed. The three remaining sutures taken out, and the points corresponding to the site of the sutures touched with solid stick of nitrate of silver. The part of the scalp covering the trephine opening was quite prominent, and upon palpation fluctuation was detected. I made an incision into the scalp here at two points, evacuating bloody serum only. I then introduced a small rubber drainage tube and dressed the wound. Pulse, respiration, and temperature normal. Patient complains of no pain; tongue dry; calomel and Dover's powder stopped. Ordered whiskey half an ounce, two grains of quinine every four hours, and also three drops of turpentine, in emulsion, every six hours.

27th. Wound dressed, drainage tube behaving nicely, very little discharge.

28th. Bowels were moved after an enema had been given.

29th. Wound dressed. Still some little serous discharge through the drainage tube. Stopped emulsion of turpentine, but continued with the quinine and whiskey.

July 1. Bowels moved twice during the night. Patient comfortable and doing well in every respect.

2d. Wound dressed. Drainage tube removed.

3d. Three weeks since the operation, patient allowed to sit up.

4th. Bowels moved.

6th. Wound dressed, very little discharge of serum from tract of drainage tube.

12th. Wound dressed. Still a little discharge of serum from tract of drainage tube. No pain or tenderness on pressure. The pulsation of the brain at the centre of the flap covering the trephine opening in the skull is very marked.

17th. Wound all healed. No further dressing applied. Patient entirely well. Walks about the hospital.

The deductions which I would draw from this case are that this, as well as other cases, proves that excision of parts of the brain can be done with, I may say, perfect impunity; therefore, in the case of a lesion the nature of which is doubtful, and which in a short time will destroy the patient's usefulness if not his life, why not here, as well as in the abdominal cavity, make an exploratory incision? I think our success is due, largely, in these cases to the precautions taken in regard to strict cleanliness.

Since Mr. Macewen has practised putting back the button of bone removed in trephining and obtaining union, you may ask yourselves, Why did I not likewise? Notwithstanding I had subjected the large button of bone, as well as the small pieces removed in my case, to the proper treatment, preparing them to be reposited, I did not think it worth while to place back so large a piece, as I had seen this done in the practice of two of my friends, and in both cases it necrosed and had to be removed; neither did I have at hand the proper instrument with which to divide the large piece of bone into small pieces or resolve it to bone-dust. Had I done the latter and placed it in the wound, it would not have been safe, owing to my not having absolute apposition of the flaps of dura mater, in which event, the brain would have been subjected to irritation, from the presence of the small particles of bone. The last examination made of this case, September 14, 1888, by Dr. Lloyd and myself, shows the opening, with the exception of a point at its centre, a quarter of an inch square, to be filled in with bone. At the point referred to very slight pulsation of the brain can be detected. Here we have had regeneration of bone from the periosteum, therefore, I am now well satisfied with the course I pursued and feel sure that before long the entire opening, made in the skull at the time of the operation, will be closed by bony plate.

ACCOUNT OF AN EPIDEMIC RESEMBLING DENGUE,

WHICH OCCURRED IN AND AROUND CHARLOTTESVILLE AND THE UNIVERSITY OF VIRGINIA, IN JUNE, 1888.

By William C. Dabney, M.D.,
Professor of Obstetrics and Practice of Medicine in the University of Virginia.

On Tuesday, June 5, 1888, I was called to see Herbert P., six years old; he had been taken suddenly a few hours before with violent pain in the left side of the chest nearly over the region of the heart. His temperature was 103°, and the skin extremely hot and pungent to the touch; his bowels were rather constipated, but not markedly so; there was no nausea, but very little appetite. His chief complaint was of the pain in the chest, which was excruciating and aggravated by the slightest movement, or by drawing a long breath. Nothing abnormal could be discovered about the thoracic organs, however, on physical examination. One grain of antipyrine was given every two hours until the temperature fell to 100° or the pain was relieved, and one grain of calomel was ordered every four hours. A mustard plaster was applied to the chest and strict quiet was enjoined, though this was scarcely necessary on account of the increase in the intensity of the pain with every movement.

On my visit the next day, I found this patient apparently entirely well, but two other members of the family, aged respectively eight and three years, had violent pain in the left side of the chest, and over the region of the stomach; the pungent heat of skin was very marked in both of these cases; the temperature in each rose to a little over 103° at noon, but was only about 101° at 6 P.M. and there was some sweating, but, singularly enough, the extreme heat of skin was very marked.

By the next day both of these children were well, but two others in the same family were sick; one of them was affected precisely as the others had been, but the other, a little boy about a year old, presented different symptoms. In his case there were two or three attacks of what I suppose from his mother's account was spasm of the glottis followed by alarming prostration. The spasm and difficulty of breathing had passed off before I saw him, but he was still very prostrate, his pulse being 128 and feeble. The prostration lasted forty-eight hours and passed off with profuse vomiting.

There were in this family six children, five of whom had the disease; one, a little girl nearly seven years old, escaped, though she remained constantly with the sick children. (It may be well enough to mention that this little girl who escaped had whooping-cough just a year before, and that, during a violent fit of coughing, she was taken with right hemiplegia and aphasia; she gradually recovered from this, and in the course of two months was apparently well, but a few weeks prior to the appearance of the epidemic she complained of severe headache and of numbness in the right hand and arm, and there was a very marked tendency to call things by the wrong names, and often she could not express herself at all; this lasted only a day or two, and she seemed perfectly well when the epidemic broke out.)

On June 8th, I was called to see a colored girl about seventeen years old; her temperature was 103.6°, her respiration rather quickened, her pulse 90, the skin very pungently hot, and the tongue slightly coated; she had very little appetite, and her bowels had not moved for forty-eight hours; she complained of pain in the left side over the region of the heart, and of some pain in the shoulder on the same side; the pain was aggravated by movement. The attack in this case came on a few hours before I saw the patient, the first symptom being pain in the side which was quickly followed by fever. There was no enlargement of the spleen that I could detect, nor was the liver affected in any way. I was told that there had been three other cases almost precisely like this one in the same family. One of them, a boy fourteen years old, was still suffering with the pain and some fever, but at the time I saw him his temperature was only 101.5°; the other two children had recovered. I did not see these cases again, but was told that both of those who were sick at the time of my visit were well the next day.

The next case was a young man about twenty years old, a student in the University of Virginia; he was taken suddenly with violent pain in the left side of the chest, which was aggravated by movement or by drawing a deep breath; indeed, ordinary inspiration caused such acute pain that his respirations were shallow and hurried. He informed me that he was taken with slight chilliness, and then the pain and a feeling of constriction across the chest; his temperature was 103.8°, his pulse 100; physical examination revealed nothing abnormal about his thoracic organs; his appetite was poor, but there was not complete anorexia; his bowels were slightly constipated, but this, he told me, was his habit. Turpentine stupes were applied over the seat of pain and fifteen grains of antipyrine were given by the mouth. At 9 o'clock the next morning the pain was very much better—in fact, there was *no* pain except on motion—and his temperature was 99°; he was given five grains of quinine every two hours until twenty grains had been taken, and was kept in bed. At 1 o'clock P. M., there was a recurrence of the pain and fever just as they had appeared on the previous day, but antipyrine afforded prompt relief to both. At 6 P. M., his temperature was 101° and the pain was only appreciable on movement. These daily exacerbations continued for six days, but becoming less intense each day.

These cases will give a fair idea of the epidemic as it prevailed in and around Charlottesville, Virginia, and the University of Virginia. It is unnecessary to report more of the cases in detail, but I shall refer to others later, in order to illustrate certain features of the disease.

It may be well enough to state, before going further, that malarial affections are practically unknown in this section of Virginia.

The number of cases which I saw during the first ten days of the epidemic was twenty-nine, and of these I took full notes. I saw at least as many more subsequently, but, being extremely busy with the final examinations of the medical students, did not take notes of them.

The disease, as will be seen from what I have already stated, was distinctly *epidemic*. It was *not contagious*, or, if so at all, only in a very slight degree. I shall give my reasons for this opinion further on.

Two of my colleagues in the University of Virginia, Dr. Cabell and

Dr. Towles, saw cases of the disease, and Drs. Randolph, R. W. Nelson, H. T. Nelson, Magruder, Flannagan, and others, of Charlottesville, had abundant opportunities for observing the affection, and all agree that it is a disease with which they had not previously met, and which had not been described.

I propose now to describe the characters of the disease as I saw it.

1. ONSET.—In every case which I saw the onset was *sudden*, and usually violent. One little girl, about ten years old, the daughter of one of my colleagues, was taken suddenly, on her way home from church, with violent pains in the side, and within fifteen minutes there was very decided heat of skin. In another instance the pain came on so suddenly that the parents of the child did not credit her complaints until the fever came on half an hour afterward, and was attended with so much stupor as to occasion great alarm.

2. SYMPTOMS.—In every instance pain was one of the first, if not the first symptom, and the rise of temperature appeared shortly thereafter. It will be well, however, to examine the different symptoms in detail.

a. The nervous system. In two cases there was a severe chill, which immediately preceded the pain, and in several others there was chilliness. The pain, however, was, by far, the most striking feature as far as the nervous symptoms were concerned. In *character* it was usually sharp and lancinating, and was much more violent when the patient attempted to move or to draw a deep breath. (So agonizing was this pain that it was nicknamed the "devil's grip" by a sufferer from the disease in Rappahannock County, Virginia, and this name became a common one there afterward, as I was told by Dr. W. F. Cooper.) There was slight tenderness over the seat of pain in every case, but it was not nearly so marked as the pain itself. The *seat* of the pain was usually in the left side of the chest just below the nipple, but in some of the cases there was pain in the opposite side, or in the shoulder of the opposite side; and in a few of the cases, especially in children, there was pain in the abdomen, usually in the epigastric region. In three of the twenty-nine cases the pain changed from one point to another; in the case of one of my own children, for example, the pain was first in the left side, and was attended with a temperature of 103°; this lasted for twenty-four hours, when they both subsided; some hours later there was a sharp attack of pain in the right side, without rise of temperature.

Headache occurred in nearly every case and was usually severe. *Backache* was present in about half of the cases. There was no aching in the limbs, as a rule, even when the temperature was high, though it was occasionally present.

b. The circulatory system. The pulse was always increased in frequency, ranging usually from 90 to 110; in the cases of some of the children it sometimes reached 120 or even a little greater degree of

frequency. Physical examination of the chest revealed nothing abnormal in the condition of the heart itself.

c. The respiratory system. The respirations were slightly increased in frequency in every case, and were rather shallow, but this increase seemed to be due entirely to the pain caused by drawing a deep breath. There was no cough, and no expectoration, nor were any evidences of disease to be found on physical examination. In two cases—the patient in each being a young adult—there was a feeling of great constriction of the chest. In one case—that of a child a year old which I have previously mentioned—there was, I suppose, from the account which I obtained from the mother, some spasm of the glottis, but I did not see the child during any of the attacks.

d. The digestive system. The digestive symptoms were, as a rule, not marked. In nearly all of the cases the appetite was poor, but in only two or probably three was there complete anorexia; thirst was always complained of during the febrile stage. Vomiting occurred in four cases, but in no case was it persistent or troublesome, and in two cases (children) it occurred just at the close of the fever, the patient having a profuse sweat and falling into deep and refreshing sleep immediately afterward. As a rule, there was slight constipation, and in two cases this was quite troublesome, but in a few cases there was slight diarrhœa; in two cases, indeed, the diarrhœa was quite severe, but I think it probable that it was due in each instance to some imprudence in diet. In the case of a little boy, four years old, there was violent spasm of the intestines, which could be distinctly felt through the abdominal walls during the paroxysms as hard knots.

e. The temperature. In every instance there was more or less fever usually ranging from 102° to 104°. In but one case was the temperature below 101°. And even in that it is probable that the temperature had been higher for a short time before I saw her. The striking features about the temperature were its rapid rise and its short duration. In every case, so far as I could ascertain, the fever attained its maximum within an hour of the time that the pain was first felt, and in only three cases did it last more than twenty-four hours. It is worthy of note that in each of these three cases the patients were fatigued by hard study. In two of these cases the fever was intermittent in character and came on at about the same hour each day; in the third it was remittent. None of these three patients, who were students of the University of Virginia, had ever suffered from malaria; one was from Portland, Oregon; one from near Bristol, Tennessee; and the third from Loudon County, Virginia

f. The cutaneous system. I have already mentioned the most prominent of the cutaneous symptoms—the pungent heat of skin. I have never seen this more marked in scarlet fever than it was in some of these cases, and in one instance, a lady who had nursed scarlet fever

patients expressed great anxiety lest she might again have to contend with this disease, her apprehensions being caused by the extreme heat of the skin. Even when there was some perspiration this heat of skin was marked. During the earlier hours of the attack the skin was dry, but later on, usually about ten or twelve hours after the outset, there was some perspiration and occasionally a very profuse sweat.

g. The urinary organs. In none of my cases was there any evidence of disturbance of the urinary organs, except a slight diminution in the quantity of urine discharged and a slightly darker color than normal—changes which are common to all forms of fever. No chemical examination of the urine was made, however, except for albumin.

3. CAUSES.—The first question which demands an answer is—Is this disease contagious? And it is not easy to give a positive answer at present. It will be observed that there were five cases in one family (of six children), and four cases in another family; in a third family all the children, four in number, had the disease, and it is especially worthy of note that the four children just mentioned had dengue in Texas a year or two ago. As a general rule, it attacked *all* of the *children* in a family. But in a very large proportion of the cases which I saw there was *no* evidence of contagion. Sixteen of the twenty-nine patients were students in the University, and among these sixteen there was not a single instance in which the disease could be fairly attributed to contagion.

In one house containing eight large rooms there were sixteen students; these young men were constantly together and yet there was but *one* case in that house. In another similar building there were two cases.

It may be stated briefly that the cases among the students were scattered in different parts of the University buildings, some of which are half a mile apart, there being generally but one or two sick men in each neighborhood. Nor could the extension of the disease be traced to the association of the students in the different classes. For example, three of the patients were medical students, five were law students, one was studying civil engineering, and seven were students in the different academic schools. The disease then, if contagious at all, would seem to have been far less so than most of the contagious diseases.

Age was undoubtedly a predisposing cause; it was far more common among children than among adults. I saw no case among the adults in those families in which the children were sick with the disease. This, it will be observed, is entirely different from dengue as it prevailed in Texas and other southern States some years ago. The weather was unusual for the month of June at the time of the first appearance of the epidemic; both days and nights were cooler than usual at that season of the year—the nights being relatively much cooler than the days.

No causative connection could be traced between the previous condition of health and the attack, in any case; but among the students

those who were broken down by hard study had the disease in a much more troublesome and intractable form than their less studious fellows.

There was nothing in the immediate surroundings of the patients which could have caused the disease. The water-supply of Charlottesville and the University is pure and abundant, and the sewerage system of the University is well-nigh perfect. Nor was there anything in the *soil* to which it could be attributed. Indeed, the epidemic prevailed just as extensively three or four miles out of town, where the surroundings were totally different, as it did in the town or the University.

4. Diagnostic Features.—The striking features of the epidemic here were: (*a*) The suddenness of the onset. (*b*) The seat and character of the pain. (*c*) The short duration of the fever. I have already mentioned these features sufficiently in detail. The disease which, it seems to me to resemble most, is dengue; but it differs from it in certain striking particulars, as shown by the following comparative tables:

In Dengue.	*In the Epidemic under Consideration.*
Violent pain in the limbs.	Rarely pain in the limbs.
Elderly people, as well as children, commonly affected.	Confined to children and young adults.
Joints are inflamed.	Joints not inflamed.
There is an eruption.	No eruption.

If Dickson's statement be correct, that one attack of dengue is protective against future attacks, we have a further evidence that the epidemic described in this paper was not dengue, in the fact that four at least of the patients to whom I have alluded had dengue in Texas a year or two ago. The father of these children—a very observant man—who not only nursed his children through their attacks of dengue, but had the disease himself, assures me that while the epidemic which I have described resembled dengue in some respects, it was in others totally dissimilar and was clearly a different affection. The breakbone fever which prevailed in Charleston, S. C., in 1880, resembled the epidemic here in some respects, but there were striking differences; for example, Forrest states[1] that "a symptom present in the majority of cases was a cutaneous eruption;" in not one of the cases which I saw or of which I heard during the whole epidemic was there any eruption present; nor was there in the Charleston epidemic the same uniformity as to the *seat* of pain as was observed here in nearly all of the cases; there was, it is true, in many of my cases, pain elsewhere than in the cardiac region, but "the pain," as the patients themselves called it, was located there, and that elsewhere was comparatively slight. Then in the Charleston epidemic "there was no distinction of age, etc.;" I did not see or hear of a case here in a person over twenty-five years of age. No one can read the accounts of dengue as it has prevailed in dif-

[1] American Journal of the Medical Sciences, April, 1881.

ferent places and at different times, however, without being struck with the great difference in the symptoms in the different epidemics. It seems to me possible therefore, but far from probable, that the epidemic which prevailed here in June last was dengue of which the symptoms were modified by climate.

5. DURATION AND PROGNOSIS.—The duration of the disease was very variable; in some cases a single paroxysm of twelve hours' duration would end the trouble, while in others it lasted for days, and in two cases as long as three weeks; the pain and fever recurring daily and usually at the same hour of the day. I have already stated that there was no history of malaria in any of these cases. There was not a single fatal case, but several of the patients whom I saw were left in a condition of extreme prostration for two or three weeks after all fever had ceased, and they would suffer pain in the affected side whenever any unusual exertion was attempted.

6. TREATMENT.—The indications of treatment in every instance, so far as the symptoms were concerned, were plain enough—to relieve pain, to reduce temperature, and to prevent a recurrence of the paroxysm.

For the relief of pain antipyrine was usually employed, in doses of from two to twenty grains, according to the age and weight of the patient, and the dose was repeated every two hours till the pain was relieved. It rarely failed to give relief within half an hour from the time of administration of the first dose. In a few instances morphia was administered hypodermatically, and opiates, generally in the form of paregoric, were given to young children. One advantage possessed by antipyrine over the other remedies which were given for the relief of pain, was that it fulfilled the second indication, reduced the temperature; furthermore, it did not constipate or cause nausea as opiates often do. In children a full bath, as hot as the little patient could bear, usually afforded prompt relief, but other external applications, such as poultices, mustard plasters, or other counter-irritants, did little or no good.

For the slight constipation, calomel was usually employed, and after the paroxysm subsided or was relieved by the remedies which I have just mentioned, quinine was given. The dose given to a man eighteen or twenty years of age, was five grains every two hours till twenty or occasionally thirty grains had been taken; to children smaller quantities were, of course, administered. I have already mentioned several times the pain upon motion or exercise which persisted in many cases for days or weeks, in a few instances I gave salicylate of sodium with the hope of relieving this annoyance, but there was no appreciable effect.

Antipyrine to relieve pain, calomel to relieve the constipation, and quinine to prevent a recurrence of the paroxysm, were the measures which gave the best results, and late in the epidemic the patients would often treat themselves with these remedies without sending for a physician.

REVIEWS.

A CLINICAL ATLAS OF VENEREAL AND SKIN DISEASES, INCLUDING DIAGNOSIS, PROGNOSIS, AND TREATMENT. By ROBERT W. TAYLOR, A.M., M. D., Surgeon to Charity Hospital, New York, etc. Illustrated with one hundred and ninety-two figures, many of them life-size, on fifty-eight beautifully colored plates, also many large and carefully executed engravings through the text. Parts I. and II. Venereal Diseases. Philadelphia: Lea Brothers and Co., 1888.

A DISTINGUISHED American artist has lately declared that no one can by the aid of words alone so graphically describe a picture to even the most skilful artist, that the latter can, without other knowledge, make even the faintest attempt at a reproduction of the original. Here one may estimate the disadvantages of the didactic over the clinical methods of teaching medicine. There are few clinical teachers who surpass in advantages the best portraits of disease. It is a marvellous matter that the Atlases are not preferred, as they should be, above all the treatises. It is, however, true that they are not. The Atlas before us furnishes a fund of information of the most practical sort that is quite inaccessible to one who has not enjoyed a large clinical experience and who is compelled to rely on the printed page for the knowledge required in venereal and cutaneous disorders.

In this matter of eye-instruction as compared with ear-instruction, the savage is in advance of the scientist. Mr. Edouard Muybridge has photographed an Indian blanket sent by LaFayette to France in the last century, on which horses are represented with the anatomical accuracy displayed on the frieze of the Parthenon, and recently demonstrated to be faithful to nature by Mr. Muybridge's remarkable photographs taken instantaneously of animals in motion. One careful study of a faithful portrait of disease is often worth more than reading a learned essay on the same theme. The former is like the unconsciously acquired familiarity with the features of an acquaintance; the latter, like reading his biography.

Dr. Taylor's admirable Atlas is so suggestive on many of the themes that interest the modern student of medicine, that one might readily be tempted to deliver a clinical lecture on the basis of the well-drawn figures and carefully tinted illustrations which its pages spread before the observant eye. Here are exhibited almost every one of the results of the pathological processes occurring in the skin and the mucous surfaces of the body. There is scarce a figure in any plate that does not surpass, in value to the student, all the writings of Boerhaave and some of the more modern treatises by less distinguished men. It is easy to understand, as we glance at the portraits thus faithfully drawn, why Mr. Seymour Haden was so earnest in impressing upon his students in surgery the importance of acquiring the art of drawing with a view to fixing more indelibly in the memory the features of external disease. "The

modern Rembrandt," as he has been called, confesses to having himself first engaged in his favorite work of etching merely as an aid to his surgical work.

The illustrations before us are new and old, and we are in no fear of contradiction when recommending the old with the new. Just in proportion as the old are faithful, are they as good as, or better than, the new. It is now nearly a half century since Rayer[1] first gave his fine plates of skin and venereal diseases to the scientific world, and was followed by Trüstedt and Behrend,[2] who, with Dr. Taylor's commendable foresight, availed themselves of the best that had then preceded. Fifty years in one sense, is not a long period; but in another it constitutes a cycle, as, for example, in measuring the progress of the world's advance in knowledge. When Rayer first published his plates, there was no electric telegraph in operation; and the entire modern system of postal transmission was not yet conceived in the fertile brain of Sir Rowland Hill. The whole pitiful career of the "Little Napoleon" was yet to be a part of history. The works then written and studied as authoritative in medicine are now, save for the collector of medical bric-a-brac, worth simply the price of old paper per pound! And yet, wonderful to relate in comparison, but yet only truth to tell (for the truth of to-day is the truth of to-morrow if only it be a real truth), Rayer's faithful plates of external disease, copied, quaint costumes and all, by Trüstedt and Behrend, are not shown to be false by the brilliant portraits and striking illustrations of disease furnished by our latest author! If one looks with care, for example, at the excellent representation here given (Part II., Plate XIV., Fig. 1) of the small pustular syphilide, he will find there only the same syphilis portrayed by the eminent Frenchman a half century before! But if he studies it closely and with the careful scrutiny of the medical artist, he will recognize a more definite purpose to exhibit the exact shade of color, size, pustular apex, and physiognomy of the individual lesion, with a pre-Raphaelite minuteness of detail, the general effect being to produce a picture of the skin in disease which can scarcely be surpassed in its value when one considers the needs of the physician.

Dr. Taylor's Atlas can be well commended to the profession as a credit to American medical literature. The publishers deserve special praise for the elegance of the typography and the care taken to produce the colored plates with the most artistic results. J. N. H.

KLINIK DER VERDAUUNGSKRANKHEITEN. Von DR. C. EWALD, Professor e. o. an der Universität, dirigirender Arzt am Augusta Hospital zu Berlin. II. DIE KRANKHEITEN DES MAGENS. Berlin, August Hirschwald, 1888.

DISEASES OF DIGESTION. By DR. C. EWALD. II. THE DISEASES OF THE STOMACH.

THIS work occupies the middle space in a series of three of which the first, the *Physiology of Digestion*, has already appeared, while the last,

[1] Traité des Maladies de la Peau, par M. Rayer, etc. Paris, 1835.

[2] Ikonographes Darstellung der nicht-syphilitischen Hautkrankheiten, mit darauf bezüglichen systematischem Texte, unter Mitwirkung des Herr Geheimrath Dr. Trüstedt und Dr. Fred. Jakob Behrend, Leipzig, 1839.

the *Diseases of the Intestine*, is, as yet, in embryo. It consists of twelve lectures occupying 431 octavo pages, to which the term "practical" is peculiarly applicable. Beginning with a description of the mechanical measures employed to obtain a sample of the stomach contents, the author next describes their chemical investigation. The former are so well known as to render unnecessary their detached description, but it is important to observe that Ewald deprecates the employment of suction, whether by rubber bag or piston, for the purpose of drawing the stomach contents into the tube. Observing that during the act of coughing they are ejected through a tube introduced into the viscus, he was led to employ abdominal pressure with the object of obtaining the requisite sample, and found it amply sufficient.

To obtain accurate results the examination of the gastric secretions should always be made under precisely similar conditions. This rule, which would appear to be self-evident, has not always been observed, and to this oversight are to be described the discrepant statements of various investigators. Ewald's plan is to administer to the fasting patient a test-meal (Probefrühstück) composed of a certain quantity of white bread (Semmel) and water, or weak tea. Such a meal contains albumin, sugar, starch, fat, salts, and extractives, and is very soon reduced to a fluid or semi-fluid condition, so that a portion of it may be readily withdrawn by the stomach tube. In so far as its acidity is concerned, the normal digestion of this test-meal may be divided into three stages. A few minutes (ten to fifteen) after its ingestion it is acid, this reaction, which continues about three-quarters of an hour, being due to lactic acid. Then begins a stage in which, together with lactic, hydrochloric acid may be detected. Finally, the lactic acid disappears and normally after the lapse of an hour only hydrochloric acid is found. It has been supposed that the presence of organic, especially lactic, acid in the stomach was always pathological, but late researches, especially those of Ewald and Boas, have shown that, in the first stages of digestion, an organic acid is always present, but the presence of such acids in a late stage of the process is thought to be of pathological import.

Our author gives a list of the various tests, mostly aniline dyes, employed to detect the presence of free hydrochloric acid in the stomach, but believes they are all thrown in the shade by the recently discovered phloroglucin-vanillin test of Günzburg. A full description of this, one of the most important tests employed in clinical medicine, may be found in the *Medical News* of January 14, 1888.

It is an interesting fact, pointed out by Ewald, that Golding Bird, in 1842, was the first to examine the contents of the stomach in a case of pyloric cancer with dilatation, with a view to determine the presence or absence of free hydrochloric acid. He found the free acid present in considerable quantity "during the more irritative stage of the disease," and, as the strength of the patient diminished, it gradually decreased, while, in corresponding proportion, the inorganic acids increased. Bird's researches seem to have been entirely overlooked by his countrymen.

The frequent absence of hydrochloric acid from the gastric secretions, in cases of cancer of the stomach, is believed by Ewald to be due, not to any mystical influence exerted by carcinoma upon the production of this acid, but simply to concomitant inflammation or atrophy of the gastric tubules. An interesting case of pyloric cancer is reported, in which, during life, free hydrochloric acid was constantly found in the

stomach contents. At the autopsy the cancer was found to be strictly localized, and the mucous membrane for the most part intact. The views of Ewald, with reference to the diagnostic value of the absence of hydrochloric acid in cases of gastric cancer, may be summarized in the following words: As a rule, there is no free hydrochloric acid in a cancerous stomach. Unfortunately, the value of this negative diagnostic sign is impaired by the fact that free hydrochloric acid is absent in certain other affections, such as atrophy of the stomach, amyloid degeneration, and mucous catarrh. On the other hand, the presence of hydrochloric acid is strong evidence against the existence of gastric cancer, for cases, such as the one just referred to, are so rare as to be of little diagnostic weight.

The fact that carcinoma of the stomach may be simulated by grave forms of hysteria, is emphasized and illustrated by reports of cases. It seems, says the author, scarcely possible to confound the two conditious, and yet cases are encountered in which, after long observation, the diagnosis is uncertain. Hysterical cases have even been encountered in which, with all the subjective symptoms of gastric cancer, there has eventually appeared an apparently pathognomonic tumor, said tumor being composed of the patient's own hair which she has swallowed.

The compensatory power possessed by the different sections of the digestive tract is dwelt upon and well illustrated by reference to a case under observation for three years, in which, although the patient continued to enjoy fair health, repeated examinations of the stomach contents demonstrated the absence both of pepsin and hydrochloric acid. The important part assigned by nature to intestinal digestion, coupled with the fact that it may entirely supplement the action of the stomach, has led Jaworski to attribute a subordinate *rôle* to the stomach, which he regards as a species of warm chamber, in which the food is detained for a time prior to its delivery to the intestine. This view reminds one of the Hippocratic theory of the coction of food by animal heat.

In non-dilatable strictures of the œsophagus gastrostomy is urgently recommended as the only means of preventing death from starvation. The operation is, in itself, attended with little danger, and patients seldom refuse to submit to it. Out of five to whom it was recommended by Ewald, only one declined to undergo it, and he was a Russian general who preferred death at St. Petersburg to a surgical operation in Berlin. Detailed directions concerning the operation are added by Sonnenburg. Minute details are given with reference to the diet of the gastrostomized patient. After gastrostomy, although the obstacle to the introduction of food is surmounted, the dilatation of the œsophagus remains and constitutes a species of incubator, in which saliva and mucus undergo decomposition, which is manifested by fetor of the breath and the regurgitation of fetid fluid. Under such circumstances the œsophagus must be washed out by means of a tube through which are passed solutions of salicylic acid, thymol, resorcin, borax, etc. The same substances may be swallowed, and Ewald has also prescribed small quantities of brandy, of which the alcohol is an excellent disinfectant.

The important subject of dilatation of the stomach is considered under the head of stenosis and stricture of the pylorus, although, it is scarcely necessary to say, the author divided cases of dilatation into two groups: 1st, those caused by mechanical obstruction; 2d, those due to

asthenia, or *akinesia* of the stomach, a condition liable to arise in the course of anæmia, various nervous affections, exhausting acute and chronic diseases, etc. In the treatment of dilatation, as adjuvants to lavage, upon which, of course, great stress is laid, massage and faradization are recommended. Until recent times there was no certain means of determining whether or not faradization of the abdominal walls gave rise to contraction of the stomach. In a case reported by Pepper (*Philadelphia Medical Times*, May, 1871), to which reference is made, the contractions of the stomach which were distinctly visible, could not be excited by faradization—*i. e.*, visibly excited. At the present day, by the use of salol, we have a more certain test of the motility of the stomach. This substance, a combination of phenol and salicylic acid, remains unaltered in the acid secretions of the stomach, but no sooner does it enter the duodenum than it is decomposed and salicylic acid appears in the urine. Under normal circumstances, salicylic acid may be detected in the urine in from forty to sixty minutes after the ingestion of one gramme (fifteen grains) of salol. By means of this ingenious test, Ewald and Sievers have been able to demonstrate that the passage of the stomach contents into the duodenum is hastened by the application of electricity to the abdominal walls. Contractions would, doubtless, be more certainly excited by passing one of the electrodes into the stomach and placing the other upon the abdominal walls, or within the rectum, so that the whole intestinal tract would be traversed by the current.

Ewald believes that much is to be hoped from surgery in the treatment of stomach diseases. He refers to the forcible dilatation of the pylorus, in cicatricial contraction, twice successfully performed by Loreta, of Bologna, and thinks it probable that, in cases of dilatation, a piece of the organ might be excised with benefit.

With reference to the value of statistics as to the frequency of this or that symptom in cases of cancer of the stomach, his remarks are generally applicable to all similar arithmetical work. "Even supposing," says he, "that we have the figures in mind, who will assure us that the case before us is one that comes under the rule, and not an exception?"

The foregoing remarks will serve to give an idea of the scope of this excellent work. The prevailing impression, after the reading of each lecture, is that the subject has been handled in the most skilful manner. The style is clear and terse, and typographical errors are remarkably few. The only ones noticed were in a footnote on page 179, where occurs the following obscure reference to a case reported by Storer of Boston: "Colloid disease of the entire stomach with wery symptoms." Again, on page 83, a catheter *à démeure* is spoken of. The word should be *demeure*, without any accent.

The quotation with which the work concludes expresses most happily the spirit which animates its every page—

> "Uti ratio sine experimentis mendax,
> Ita experientia sine ratione fallox."

F. P. H.

ANÆSTHETICS, THEIR USES AND ADMINISTRATION. By DUDLEY WILMOT BUXTON, M.D., B.S., Member of the Royal College of Physicians; Member of the Royal College of Surgeons of England; Administrator of Anæsthetics in University College Hospital, the Hospital for Women, Soho Square, and the Dental Hospital of London. 12mo. pp. xii. 164. London: H. K. Lewis, 1888.

A GOOD manual of anæsthetics, a treatise at once concise, precise, and practical, would be a welcome addition to medical literature and an especial boon to the student. In the effort to supply such a work the author of this little book has been tolerably successful. It is written from the standpoint of practical life, under a strong feeling that the administration of anæsthetics deserves more attention and study than it receives, and that for satisfactory use of these agents both knowledge and skill are necessary. It is scientific in spirit and scrupulously non-partisan. Still, with very much for commendation, there are features which might have been better. Nitrous oxide occupies as much space as chloroform and more than ether. The chapter on the less-used anæsthetics might well have been omitted; amylene belongs to the past, and the record of ethylene is not such as to encourage further trial. To say the same of bromide of ethyl would probably arouse dissent here, and it is mentioned only to call attention to the fact that the author has omitted any notice of the marked perturbative influence of this agent upon the heart's action. But the gravest fault to be found with the book is precisely one which would not be expected from the opportunities enjoyed by the author, as set forth in the title page, for practical acquaintance with his subject. Instead of that honest dogmatism which comes from experience and which is so valuable in a teacher, we have too frequently the indefiniteness of general statement, or the preface of "some find" things thus and so, or "it is said" that such a thing "may be tried." This in connection with some of the most important points relating to the subject is a grave fault. As an instance the following may be given:

"Where the kidneys are much damaged and there is considerable danger of suppression of urine, ether is by many held to be contraindicated. Certainly in many instances no such untoward result has been brought about; still, perhaps, it is well to substitute the A.-C.-E. mixture for ether, for those patients who are the subjects of renal disease."

In this country the doctrine that disease of the kidneys is a contra-indication to the administration of ether, first taught by Emmet, is, we believe, fully accepted, nor is it considered necessary that these organs be "much damaged." The student would perhaps like to know how he is to recognize the presence of danger of suppression of the urine.

Many instances of indefinite statement could be selected, but it is a pleasanter task to note points for commendation. In the choice of an anæsthetic the author considers: 1, the condition of the patient; 2, the necessities of the operation. In the chapter on ether, eight conditions are given in which this agent should not be used. We find no decided expression in favor of or against either of the individual anæsthetics, yet it is easy to read between the lines that chloroform is not a favorite. It is a significant fact that it is not mentioned as a substitute in the

quotation already made. So, also, is the statement that the men who have had most to do with chloroform have been occupied in trying to find some substitute for it. Snow introduced amylene and tried ethylene, and Clover devised the combination of nitrous oxide followed by ether, doubtless the safest anæsthetic process, but requiring complicated apparatus, and, therefore, not adapted to private practice. No exception can be taken to the statement that anæsthetics stand, as to relative mortality, in the order—nitrous oxide, ether, chloroform; but the figures to support this statement might have been spared. There is, and can be, no statistical basis of relative mortality because the number of administrations cannot be obtained. The friends of chloroform will be encouraged by the statement here made that there have been 36,500 administrations of this agent at the Edinburgh Infirmary during ten years, with but one death.

We are glad to find here the table, from Snow, showing the different percentages of chloroform vapor in air at different temperatures, a point often overlooked by writers, but which should never escape the attention of the administrator. At 60° F. air carries twelve per cent. of chloroform; at 80° twenty-six per cent., or more than double, and a range of temperature over these points occurs from season to season, and may occur even from day to day.

With the author's doubt as to there being any special immunity from disaster with chloroform on the part of children, we are fully in accord. Elements of safety there are in this class of subjects, but absolute safety, although often taught, is not supported by facts, and while we admit, with him, that children run a risk with chloroform are not prepared to accept the view that it is "probably as great" as with adults. One of the leading journals of this country contains, within the present year, two reports of the narrow escape of children from chloroform narcosis.

Especially worthy of praise is the plainness with which the danger of partial anæsthesia is presented. Having been an urgent advocate of this danger, many years before it was recognized, as it now is, by the best authorities, we still frequently see the necessity of its promulgation in directions to operate during the early stage of anæsthesia, "after a few whiffs" of the agent. As the author well says, "nothing can be more prone to produce fatal syncope." Indeed, the plain truth is here fully recognized that by partial anæsthesia danger is increased.

"Under these circumstances, too, it must be remembered that the heart is peculiarly liable to reflex inhibition, as vaso-motor paralysis occurs antecedently to loss of conduction along the sensory tracts of the nerves and cord."

In regard to death from anæsthetics, most important is the distinct recognition of the facts that it sometimes takes place under ether by failure of the heart's action being the first step, and under chloroform by cessation of respiration. Instances of each are on record, yet the lethal action of ether on the heart has been strenuously denied. The subject of death from chloroform is not as satisfactorily presented as it deserves. The one great fact of irregularity of action of this agent is not emphasized as it should be. The amount in the blood is not the only point; it kills sometimes at the very beginning of inhalation; it proves suddenly fatal to those who have taken it safely before.

Having used the A.-C.-E. mixture almost exclusively for surgical anæsthesia ever since it was first recommended to the profession—now twenty-

five years ago, we looked over the chapter on "anæsthetic mixtures" with unusual interest. It does not bear that evidence of practical acquaintance with this branch of the subject which gives value to what the author has to say. It is stated that the A.-C.-E. mixture "needs careful watching;" and we ask if it is herein different from any other anæsthetic? It is also stated that deaths have occurred during its use, but facts to support the statement, or references to authorities are lacking. A careful scrutiny of periodical and other literature has yielded but a single fatal casualty with this mixture.[1] It is with regret that we find repeated here the objection to this mixture based on the different rates of evaporation of its three components. This is a laboratory objection transferred to the clinical field and will not bear examination.

Mixed narcosis, as produced by the combined effect of morphia and chloroform, is mildly endorsed, and the addition of atropia to the morphia given hypodermatically before the inhalation, is very justly considered of great value. The author gives Kappeler's adverse opinion as to the combined effect of ether with morphia, and expresses doubts of its sound clinical basis. "Certainly in cases at University College Hospital in which the method was employed no great struggling or inconvenience was observed." A very considerable experience with the combination of morphia and atropia preceding the A.-C.-E. mixture, which is half ether, has failed to give any evidence of the correctness of Kappeler's views upon this point.

The chapter on anæsthetics in obstetric practice is very brief and, we regret to say, not worthy of the important subject considered. We refer to it only for one or two points. On page 19 the author says "chloroform can be in no way deemed freer from liability to danger in childbirth than at any other time." On page 111, considering the objection that this agent increases the mortality of mothers and children, he says, "statistics certainly negative this statement." The author may reconcile the statements. The truth is, that the clinical experience of the world has shown a wonderful immunity to accidents from chloroform on the part of the parturient woman. So marked has this been that numerous and ingenious theories have been devised to explain the striking but happy fact. We wish the author had told us in this chapter why, "in primiparæ, chloroform must be given very moderately."

We trust that a new edition of this little work will be prepared, which, abbreviated in some portions and extended in others, will make an excellent manual for the student. J. C. R.

INTRACRANIAL TUMORS. By BRYOM BRAMWELL, M.D., Lecturer on the Principles and Practice of Medicine in the Extra-Academical School of Medicine, Edinburgh. With 116 illustrations. 8vo. pp. xiv. 270. Philadelphia: J. B. Lippincott Co., 1888.

IT is always interesting to read a work based upon the careful clinical and pathological observations of a man of wide experience, for it is sure to contain original views and to form an addition to the knowledge of

[1] Reported by Dr. Morton, AMER. JOURN. MED. SCIENCES, October, 1876, p. 415.

the subject treated. Dr. Bramwell has chosen a subject of special importance at the present time when the claims of cerebral surgery in the treatment of intracranial tumors are being urged and discussed, and as this is the only monograph in English upon the subject it will be widely read.

The first half of the book is devoted to the symptomatology of brain tumors in general. Clinically cases may be divided into four classes: (1) those in which no symptoms are present; (2) those in which general symptoms of an intracranial tumor are found but in which there are no symptoms indicated of its exact site; (3) those in which the symptoms indicate not only a tumor but its exact location; (4) those in which there are distinct indications of derangement or disease of the intracranial contents, and in which the symptoms may be due to the presence of an intracranial tumor but are not typical and characteristic of that condition. Each of the distinguishing general symptoms of brain tumors is carefully discussed, viz., headache, vertigo, vomiting, and double optic neuritis. In regard to the last, the author holds that the affection is not always produced in the same manner. He admits the possibility of a descending neuritis, but inclines very strongly to the Leber-Deutschmann theory that increased intracranial pressure combined with some irritating substance in the cerebro-spinal fluid sets up the neuritis, though he admits the hypothetical nature of this substance. The chapter on optic neuritis presents the subject clearly and states concisely the various theories as to its cause. The localizing symptoms are then detailed briefly but clearly, the chief facts being stated and fuller discussion postponed to the section in which the diagnosis of the localization of the tumor is treated. In this section some of the most recent discoveries seem to have been overlooked—*e. g.*, the discovery that the cuneus is the visual centre, but as the book is based on lectures delivered a year ago this is not surprising, for progress in cerebral diagnosis is very rapid.

The chapters on differential diagnosis are well written. Three questions are considered separately: 1. Is there an intracranial tumor? 2. If so, where is it situated? 3. What is its pathological nature? Under the first question the differentiation of Bright's disease, lead encephalopathy, hypermetropia with anæmia, atrophy of the brain, migraine, hysteria, meningitis, cerebral abscess, and hemorrhage from cerebral tumor are carefully discussed, and some difficulties cleared up. The only criticism which may here be offered is that in some cases two or more of these conditions are present, as well as cerebral tumor, and in such cases diagnosis becomes very difficult. This section, however, will be of service to the general practitioner as well as to the neurologist, as it is a suggestive one.

In considering the second question, the subject of cerebral localization is presented concisely, due importance being given to the necessity of separating direct local symptoms from indirect or pseudo-localizing symptoms produced by disturbances of circulation or function at a distance from the actual seat of the disease. The symptoms produced by tumors situated in various portions of the brain are then discussed. By this arrangement repetition is inevitable and constant cross references between the chapter on the localizing symptoms and this chapter are necessary and it seems unfortunate that the two should not have been combined into one. The third question as to the pathological nature

of the tumor, is carefully considered and all the indications which can throw light on this very obscure field of diagnosis are given. The last chapter is devoted to the surgical treatment of intracranial tumors and is written by Mr. A. W. Hare. This is decidedly meagre, but nine pages being given up to it and many important details being entirely omitted. This is especially unfortunate, as it is the practical side of the subject that at present excites much interest.

The work then presents in an acceptable manner—exclusive of the last chapter—the important subject with which it deals, and is a valuable contribution to medical literature. The only criticism which may be offered is that the author has not embodied in it the results of other observers, notably Bernhardt and the German writers and therefore the work is less complete than might have been expected from his previous writings. M. A. S.

INTUBATION OF THE LARYNX. By F. E. WAXHAM, M.D. 12mo. pp. 110. Illustrated. Chicago: Charles Truax, 1888.

THIS little volume is a detailed exposition of the very important procedure which Prof. Waxham has done so much to popularize. It is appropriately dedicated to Dr. O'Dwyer, whose name will be prominent in the history of medicine in connection with intubation of the larynx.

One hundred and fifty cases of intubation by the author for diphtheria are narrated with sufficient detail for due appreciation of their import; and a table of one hundred cases by Dr. O'Dwyer is appended. Of the 150 cases intubated by Waxham 41 recovered, and of the 100 by O'Dwyer 27 recovered; a striking similarity in result. It is pleasant to learn that the proportion of recoveries at a tender age far exceeds that which follows tracheotomy. Every detail necessary in studying and practising this important manipulatory procedure is duly presented in Prof. Waxham's manual, and is admirably illustrated. We are pleased to see that the author advises the precautionary use of an antiseptic respirator by the operator during his manœuvres.

By means of an artificial epiglottis attached to the tube the author has been able in some instances to overcome the difficulty in swallowing water and liquid nourishment which has been such an obstacle in the after-treatment. We would call especial attention to the advice of the author that great care should be taken to see that all the appliances used are carefully constructed, in order that unnecessary disappointments and accidents may not follow their use.

We earnestly recommend all physicians who intend to practise intubation to study this working manual of Prof. Waxham, as their best method of avoiding much unsatisfactory experience inseparable from practising a novel operation under such important conditions as those calling for intubation of the larynx. Intubation, while it is not expected to supersede tracheotomy in all instances, will save many a sufferer from an otherwise inevitable tracheotomy, and save from death many more in whose behalf tracheotomy is refused, or whose surroundings are such as to deny them the subsequent supervision necessary to secure all the ad-

vantages of that operation. If ovariotomy has added its thousands of years to the lives of dying women, shall not intubation add its tens of thousands to the lives of dying children? J. S. C.

THE NATIONAL FORMULARY OF UNOFFICINAL PREPARATIONS. First Issue, by Authority of the American Pharmaceutical Association, 1888.

THE wisdom of having this work, somewhat similar in its scope to the *Pharmacopœia*, published without the official sanction of the medical profession may well be challenged.

On looking through the book the elixirs—eighty-five in number—are found to be quite conspicuous. One aim has obviously been to make the administration of drugs more attractive to the eye and palate of the patient; quite a praiseworthy object, but not the only, nor the chief one, to be kept in view in giving medicines.

No doubt, many practitioners are in the habit of prescribing this or that elixir or mixture made by various firms, and it is a hardship for the apothecary to be obliged to keep on his shelves essentially the same preparation made by several manufacturers, and the general use by physicians of such a volume as this would relieve the pharmacist from much of this burden.

The following examples, which are already much used (are taken from the *Formulary*), would make an excellent addition to our officinal list of drugs: Chloroform water; glycerite of tannic acid; camphorated chloral; Fehling's solution; pancreatine; solution of pancreatine; and solution of saccharin. To these might well have been added pills of quinine, as they were not provided for in the last *Pharmacopœia*.

Fleming's tincture of aconite, a stronger preparation than the officinal tincture of this very poisonous drug, is to be found in this list; every precaution should be taken not to confound these preparations with each other.

The composition of compound powder of pepsin is open to criticism from a physiological standpoint, as it is made up of *diastase*, *pepsin* and *pancreatine* with *hydrochloric* and *lactic acids* and sugar of milk.

The prescriptions for newer remedies have not been included, but it is intended to put them in a second edition of the work, should there be occasion for its publication. This list cannot replace the officinal one, and the addition of more than four hundred titles (the *Pharmacopœia* has about one thousand), would increase, in some ways, the embarrassment which the practitioner has to encounter.

The problem of how best to assist the physician in the intelligent use of medicines has been considered by a committee made up of representative physicians and pharmacists, and the outcome of their labors, the *United States Pharmacopœia*, is more or less familiar to the great body of practitioners. The last revision of the *Pharmacopœia* is by no means perfect, and the time for the next revision being near at hand, this *Formulary* will, doubtless, afford useful hints to the new committee, and, perhaps, promote some provision for the issue of a supplement after five years.

It is to be hoped that the revision of 1890 will give the country a work much superior to anything thus far published, and that it will not be thought necessary for the American Pharmaceutical Association to set up a "standard and guide," including "catarrh powder" and "diarrhœa mixtures."

The united efforts of both physicians and pharmacists should be directed toward making the best and simplest pharmacopœia, which shall be in universal use by American physicians. F. H. W.

THE ANATOMY OF SURGERY. By JOHN M'LACHLAN, M.B., M.R.C.S., Master of Surgery, University of Edinburgh. Illustrated with 74 engravings. 12mo. pp. xv. 768. Edinburgh: E. & S. Livingstone, 1887.

THE fact of this book having been written for the special purpose of supplying aspirants for medical degrees in Great Britain with the material with which they are expected to be familiar in order to attain the highest of these degrees, at once bars much criticism which would be applicable to a similar treatise intended for the profession and students in general; but evidently the writer and his publishers, upon completion of the work, have thought it sufficiently valuable to place upon general sale. Very probably the contained history, etiology, classification, symptomatology, diagnosis, and treatment of the usual conventional surgical operations and procedures concord exactly with the ideas of the British Board of Examiners, so that any criticism would be of the ideas of that board and not of the book itself. Considering the book upon its literary merits and its value to the American student and practitioner, we find in it some points of advantage over other operative surgeries or surgical anatomies, and also many in which it falls short of being best amongst such works.

The author's prefatory statement that the book will not be found complete is verified by its perusal, but his excuse therefor and for errors, on the ground that the volume "has been very hurriedly put together," is far from being valid or sufficient. The usual idea and plan of similar works form the basis of the one in hand, and the customary chapters on ligations, amputations, etc., are in it to be found: but symptomatology, etiology, classification, and diagnosis receive better and more lengthy consideration than is usually allotted to them. Fractures and dislocations receive separate chapters; the anatomy of which is excellent, but, as might be expected, treatment at times differs widely from that in vogue in America. The illustrations are not sufficiently numerous, and some are exceedingly poor. The inclusion of a number of Smith and Walsham's beautiful plates of the collateral circulation of the main arteries is a valuable addition to the book's worth, as also is a table showing the origin, attachment, and nervous supply of every important muscle. Whilst we are bound to acknowledge many good points in this book's favor, yet are we equally bound to say that we would neither add it to our library, nor direct its use, above others, by a medical class.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,

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PHENACETIN.

Of the many reports on the use of phenacetin, or acetphenetidin, one recently made by DR. FRIEDRICH MÜLLER (*Therapeutische Monatshefte*, August, 1888) is of unusual merit. He made numerous trials of the remedy in various diseases, and found that the temperature in adults was lowered by doses of from seven to eleven grains, and seldom as much as fifteen grains was used. The fall in the temperature occurred within from one to four hours, and was accompanied in most cases with perspiration, but without disagreeable sensations.

During the apyrexia, which lasted from three to five hours, the patients were quite comfortable, having a better appetite and more sleep. The rise in temperature was unaccompanied by a chill. For the patient's comfort it is desirable to avoid alternate fall and rise in the temperature. If the drug is administered continuously, the temperature rises in spite of it, and after some days the system becomes habituated to the agent, and larger and larger doses are required—in fact, so large as possibly to become dangerous. He has observed marked cyanosis from 90 to 120 grains daily.

Nothing more is accomplished by phenacetin than by the other antipyretics, for example, antipyrin; but it has the advantage of less unpleasant accompaniments. It is tasteless, vomiting and indigestion appear only exceptionally, ringing in the ears, or exanthematous eruptions, or signs of renal irritation were not observed. In some cases phenacetin seemed to promote diarrhœa.

Like some other antipyretic agents, phenacetin possesses the property of quieting pain, and has been employed to relieve headache, except that connected with organic cerebral disease, or uræmia. For this purpose forty-five, or even seventy-five, grains a day are required. In some neuralgic affections the pain is relieved by phenacetin, and for such purposes it seems to be in no wise inferior to antipyrin and antifebrin.

In twenty-four cases of acute articular rheumatism, prompt relief from fever and the pain and swelling in the parts was obtained in fifteen cases, and disappeared wholly in from two to nine days, in four cases no improvement followed, and in six the condition was not affected. Of these six, two were of gonorrhœal origin, and two were considered cases of chronic rheumatism.

Phenacetin, it would seem, deserves to be placed in the same rank with antipyrin and antifebrin as an antipyretic, and also as a means of relief in rheumatism and neuralgic pains. It is interesting to note that phenacetin possesses practically no antiseptic qualities.

Cocaine.

Any observations which will suggest the limits of safe doses for cocaine have a very practical interest. Dr. Szumann, in the *Therapeutische Monatshefte*, suggests, for adults, one-half, or three-fourths, to one grain, subcutaneously. With such doses he saw no untoward effects; one grain, however, is adapted only to robust individuals. Some patients will, of course, bear very large doses, among them certain opium-takers, who have used as much as seven to thirty-seven grains daily, though one may get toxic symptoms in such patients from an injection of one and a quarter grains.

With nervous patients, and also with those having cardiac disease, as well as those inclined to cerebral congestion, large doses of cocaine may prove dangerous on account of the marked effect on the heart and circulation, as Alexander Fränkel has very properly emphasized.

Cocaine in General Anæsthesia.

This method varies from that mentioned in the September number of this Journal (page 288), in that the cocaine is injected for its local anæsthetic effect at the seat of operation, after the general anæsthesia has been induced. Though both substances are administered for the same end, their combined use, according to Prof. Oblinski, excludes certain dangers of the separate employment of each. In cocaine we possess an excitant which is the best possible antidote to the action of chloroform in paralyzing heart and vessels. So the use of chloroform is a good measure against the symptoms of brain anæmia that cocaine often produces. The amount of chloroform used is less—vomiting occurs less often, and especially noteworthy is the gentle recovery.—*Wien. med. Wochenschrift*, 1888, Nos. 15 and 16.

On the Administration of Sulphonal.

In the *Therap. Monatshefte* of July 2, 1888, Kast, the discoverer of sulphonal, gives some experimental conclusions directed to the point of the retarded activity of sulphonal. From published papers (Cf. Lovegrove, *Brit. Med. Journal*, 1888, p. 1112) and private communications he has learned that many have found that the primary hypnotic action is postponed too long—*i. e.*, two or three hours or more, and that the effect lasts longer than is wished—*i. e.*, into the succeeding day.

Two important qualities distinguish sulphonal, he observes: First, its in-

solubility; second, its resistance to chemical change. Sulphonal is soluble, he finds, by exact estimation in eighteen or twenty parts of boiling water, but it recrystallizes on cooling. At blood-heat, 450 parts of water are necessary to dissolve one part of sulphonal. Addition of salts considerably increases its solubility—thus it is easily soluble in concentrated mineral water. The addition of an amount of hydrochloric acid, corresponding to the proportion in the gastric juice, increases its solubility one-half. In artificial gastric juice it is soluble 1:200, at the temperature of the body, and it was not reprecipitated for several hours after neutralizing. Peptones prevented the reprecipitation of a very concentrated solution made in hot water.

As to the absorption, Kast found that very small quantities of sulphonal were present in the intestine of a dog killed two hours after the ingestion. After six hours none could be demonstrated in the gastro-intestinal tract, but small quantities were found present in the blood.

These facts lead to the determination of the best method of administration. This should be in a good quantity of warm water in the early evening hours, and best with the supper. In this way advantage is taken of those conditions favoring a rapid solution, viz., a fairly large quantity of water with a good proportion of hydrochloric acid, and salts and peptones in rich abundance.

Method of Testing a Hypnotic.

As many physicians will undoubtedly be led to experiment with some of the numerous new hypnotics, a mention of Rosenbach's cautions will certainly be profitable. Recognizing the importance of the mental attitude of the patient as a factor, he advises, first that the hypnotic be given without the knowledge of the patient at times other than bedtime; second, if the results appear good, that the patient be made acquainted with the experiment, and then an indifferent substance be substituted, to be alternated now and then with the hypnotic; and finally, it is to be given to patients, without their knowledge, who are not in bed.—*Berl. klin. Wochenschrift*, 1888, No. 24.

The Absorption of Cod-liver Oil—Lipanin.

Physiologists have always been at work upon the question, What makes cod-liver oil more digestible and assimilable than other oils and fats? The explanation was in turn found in the iodine present, in its property of passing through animal membranes more easily, and, finally, it was asserted that it was no different from any other fat. Each of these views was in turn disproven and gave place to that which has prevailed for a decade, since it was first set forth by Buchheim. This finds the key in the larger proportion of free fatty acids present, which assist in the emulsification of the fat after the oil has reached the duodenum. In general, though, the proportion of free acid in ol. morrhuæ is very variable, and for this reason and because of the disagreeableness of the oil, Mering (*Therap. Monatshefte*, 1888, p. 49) had made a substitute which has been put into the market under the name of lipanin (λιπαίνω, to fatten). This consists of olive oil containing six per cent. oleic acid, of pleasant taste and emulsifying very easily. Mering has used it now in forty cases of rickets, phthisis, etc., and in all the effects on nutrition

was positive, the weight increasing. No symptoms were noted on the side of the digestive tract. The dose is the same as for cod-liver oil.

Recently MARPMANN, an apothecary in München, has taken up the subject again and thrown new light upon it (*Münch. med. Wochenschrift*, July 7, 1888).

The digestion of fat is a subject about which we possess but little accurate knowledge, but it seems improbable that the small quantity of fatty acid present in cod-liver oil can be of so much importance when we consider that *neutral* fats in food are perfectly well borne and assimilated, and that the pancreatic juice has the power to split up a neutral fat into fatty acid and glycerin. Marpmann, then, was not satisfied with the fatty acid theory, and looking for another source finds it in the stomach, to which, before him, no attention had been directed. Fat is better borne the more intimately it is mixed with the food and saliva—*i. e.*, the better it is prepared to pass the stomach; oil in any considerable quantity upsets the stomach, because it envelops the food and prevents gastric digestion, and when one fat is found better borne than another, the ground is to be sought in the way such a fat behaves *in the stomach*.

Impelled by such considerations as these, Marpmann tested various oils with artificial gastric juice. All the oils shaken with the gastric juice separated immediately on standing, but cod-liver oil remained emulsified for fifteen minutes, and after twenty-four hours had cleared up only one-half. Here, then, according to Marpmann, is the explanation of the superiority of cod-liver oil, viz., that it passes out of the stomach and meets the pancreatic juice *after it is already in a finely divided state*, while other oils, keeping their independent existence in the stomach, enter the intestine in the form of large drops.

By the same experiment lipanin refuses to mix with the gastric juice, but separates its oil quite pure after a few minutes; a mixture of olive oil and phosphoric acid separates just as pure olive oil. These facts prove that the miscibility of cod-liver oil with the gastric juice cannot depend upon its containing free acid. On the other hand, first, fat-peptonate, another substitute for cod-liver oil, consisting of cod-liver oil and olive oil mixed with pancreatic juice, and, second, a mixture of olive oil and oleate of soda, mix, the first completely, no oil separating in twenty-four hours, and the second about as cod-liver oil.

These facts allow us, Marpmann believes, to suppose that the active ingredient in cod-liver oil is a small quantity of some salt of a fatty acid. Later he has obtained from cod-liver oil, by ether and alcohol, a substance which, dissolved in water, gives other fats the properties of cod-liver oil, and which is likewise present in the pancreatic fluid.

One practical conclusion which Marpmann draws is that cod-liver oil should be mixed with the food and prepared in the mouth, rather than drunken.

BORIC ACID IN ANTISEPSIS.

In the *Journ. de méd. de Paris*, 1887, vol. ii. p. 180, some notice was given a substance called antifungine, which was shown to be borate of magnesia, soluble in four parts of boiling water, and possessing in fifteen per cent. solution very energetic antiseptic and disinfecting properties. In the same journal of July 15, 1888, directions are given for making a substance like this, and

possessing its same qualities. Dissolve one part of calcined magnesia in seventy-five parts of water on a water bath, and add boric acid to the point of making the solution cloudy. This will require 12.4 parts of boric acid. After evaporation, the ground residue makes a white powder of sweet taste, soluble in four parts of water, and the solution is strongly antiseptic. This substance removes the disadvantage of boric acid in point of insolubility.

Antiseptic Properties of Ammonia.

Gottbrecht (*Deut. med. Woch.*, July 19, 1888) calls attention anew to the antiseptic properties of ammonia. These were long ago discovered by Richardson, though but little has been thought of the fact. Gottbrecht finds that a solution containing liquor ammoniæ in proportion of 1:100, keeps meat from decaying seven days, and in proportion of 2:100, and 4:100, two and a half months; while meat kept over a year in 5 to 8 per cent. solutions. Cultures of this last gave negative results. Like Richardson, so Gottbrecht finds the source of this control in the strong reducing power of ammonia.

Saccharin as an Antiseptic.

M. Constantine Paul finds that saccharin possesses marked antiseptic powers. A 1 : 700 solution controls the development of the staphylococcus pyogenes aureus, and because it prevents the development of all microbes contained in the saliva, etc., and a 1 : 200 solution prevents ammoniacal change in the urine, he recommends its use in solutions for lavage of the stomach and bladder.

A 1 : 500 solution hinders in an appreciable manner the action of pepsin on the white of egg, fibrin, etc., and of diastase on starch, but does not arrest either action entirely. This may perhaps account for the digestive disturbances referred to by M. Worms (*vide* September number, p. 287), because it cannot be said to be in any way toxic, being eliminated entirely unchanged by the urine. Another explanation might be found in the condition of the kidneys. Saccharin has been made the subject of much discussion in France, and Girard, director of the municipal laboratory of Paris, demanded that its sale be stopped because of its extensive and growing use in adulteration of syrups, liquors, and food. Under the name of sucre de Cologne it has been sold at a low rate (four cents a German pound), and there is, besides, no duty on it.—*Comptes rend. de l'acad. de méd.*, July 13, 1888, and *Gaz. Hebdom.*, August 3, 1888.

Iodoform in Hæmoptysis.

Chauvin and Jorissenne (*Prag. Med.*, May 19, 1888, p. 387) have found the best comparative results in the treatment of hæmoptysis from the use of iodoform, gr. j, in pill, twice a day. Their observations rest on a large series of cases, and, therefore, are worthy of attention.

Diuretic Action of Strophanthus.

Lemoine finds polyuria the most constant of the effects of strophanthus. Experiments on healthy persons with gtt. 5–6 of tincture gave double the

quantiy of urine in forty-eight hours. The same success was obtained in cardiac cases; as a rule, the persistence of the diuresis was marked. A secretion of ℥ xiij was increased to three quarts, and five days after suspending its use was still two quarts. In three cases a very abundant serous diarrhœa was caused, only to be controlled by stopping the drug.—*Comptes rend. de Soc. d. Biol.*, June 15, 1888.

Simulo as an Antiepileptic and Antihysteric.

Eulenburg (*Therapeutische Monatshefte*, 1888, 353) has made trial of the tincture of simulo, prepared from the fruit of *Capparis corriacea* recently recommended for the treatment of epilepsy by W. Hale White in the *Lancet* of March 31st. He administered it during a long period of time to four cases of epilepsy and three of grave hysteria. The dose employed was one-half to two teaspoonfuls two or three times a day. In the hysterical cases it proved absolutely useless, even as a palliative. The bromides, properly administered, have proved themselves the best means we possess in the treatment of epilepsy. There are cases, however, in which, through some idiosyncrasy, they produce maniacal excitement, convulsions, or delirium; though these are rare; others in which their action is too depressant to allow of their continuance, and still others in which they exert only a partial control over the frequency and intensity of the paroxysms. It was to be hoped that simulo might prove of value as a substitute in such cases, but in only one of the four in which trial of it was made, were the results sufficiently encouraging to warrant further experiment with it. This case was that of a man of eighteen years, who for seven years had suffered from frequent well-marked attacks of epilepsy, and in whom improvement up to a certain extent had followed the use of the bromides. During five months he was given the bromides for one to two weeks, and then the tincture of simulo for an equal time. It was always the case at first that the attacks were less frequent, and the patient felt better during the time that the simulo was being administered; but finally the drug seemed to lose its power and had to be suspended, since the paroxysms grew more frequent. In the other three cases of epilepsy the action of the new drug was evidently weaker and more uncertain than that of the bromides in moderate doses.

Codeine and Morphine in Diabetes.

Dr. Mitchell Bruce has compared the effects of these alkaloids in two classical cases of diabetes. The observations extended over several months, and were made with great care. The sugar in the urine was first reduced to a minimum by a strictly antidiabetic diet, and then one of the drugs was administered to both patients, and its effects on the sugar were noted. Phosphate of codeine was given hypodermatically, and the dose was gradually increased to more than twenty grains a day. After an interval on strict diet, acetate of morphine was given to both patients, up to as high as five or six grains per diem. Of the two drugs, the morphine proved to be the more efficacious, as under it the sugar was more completely controlled. Codeine is much more expensive than morphine, and large doses of it are necessary. Narcotic effects from morphine seldom presented themselves so long as the sugar continued to fall.

Dr. Bruce found some difficulty in removing the last traces of sugar, and he suggested that in practice we should be satisfied with reducing the sugar to a small amount, rather than use the large doses required to free the urine from it completely.

The full report of this carefully conducted inquiry may be found in *The Practitioner* for July.

Glycerite of Starch as a Surgical Dressing.

Charles E. Fleming, M.R.C.S. (*British Medical Journal*, September 22d), has found a non-irritating dressing which does not evaporate at ordinary temperatures, does not allow the discharges to get caked or hard, while it is freely miscible with them. It may have some antiseptic dissolved in it. The starch added to the glycerine makes it more convenient to apply, and, in addition, forms a non-irritating surface to apply to the wound, and is a mechanical protection.

It is most conveniently used, thickly spread on one or more layers of Gamgee tissue, or some absorbent wool; it may be removed with the greatest ease from any wounded surface. The glycerine itself is hygroscopic, does not usurp the place of the discharge, nor prevent the free escape of watery vapors. Such a dressing, after several days, will be found moist, soft, flexible, and heavy with the quantity of fluid it contains. Next the wound there is a jelly-like layer, which may be removed readily, and the sutures, if any, are distinctly seen and easily taken out. Its use in skin-grafting is suggested.

Menthol in Pruritus Labii.

The application is made by rubbing the affected surface two or three times with solid menthol; it produces some burning pain at first, but is followed by a most comfortable sense of coolness, and the congested color of the vulva almost disappears.—*British Medical Journal*, September 1, 1888.

Creolin.

Amon, as well as other writers in the surgical field, has used creolin with satisfactory success in obstetrics and skin diseases; he also obtained good results in tuberculosis.

In pulmonary tuberculosis, and other allied diseases, accompanied with more or less secretion, he used creolin inhalations, and found that they were inhaled easily and without harm. He began with one-half per cent. solutions and increased them to two per cent. The inhalations had a favorable effect upon the expectoration, and in almost every case the amount of the secretion decreased perceptibly, and after some days the patients felt relieved. No effect upon the course of the fever was observed. In cases in which there were bad smelling excretions, they either became odorless, or the offensive odor was much mitigated.

In the last stage of tuberculosis Amon saw no beneficial effect from creolin. In two cases, in which infiltration of the apices, or only slight extension of the process over an upper lobe existed, a marked and favorable local result was perceived (diminution of the râles and less dulness). He has used it successfully in diphtheria.—*Schmidt's Jahrbücher*, vol. ccxix.

Large Doses of Digitalis in Pneumonia.

Prof. Petresco gives a most astonishing account of the results of this remedy in pneumonia. He used an infusion made from one to two drachms of digitalis leaves, in some cases even three drachms in the twenty-four hours, with, he claims, complete success.

Since 1883 he has employed in pneumonia nothing except an infusion of one drachm of digitalis leaves in eight ounces of fluid, a tablespoonful every half hour. As a rule, the malady was strangled in three days. "The fever and all the physical signs, local as well as general, disappeared as if by enchantment."

The temperature fell, after about three doses of a drachm of the leaves, from 104°–105° to about 96°; the pulse from 120–130 down to 30–36, a minute.

The general condition of the patients improves in a most surprising manner; they wake up as if from a sound sleep, express themselves as feeling very well, and ask for something to eat.

The mortality in these cases was only 1.22 per 100. He even goes so far as to say that he is convinced that the mortality in this disease may be reduced to zero if these doses are given early.

As illustrating the tolerance and harmlessness of these doses of digitalis he refers to 577 observations published in his treatise on *Therapeutics*, in 1884, and to the theses of his students.—*Gazette Hebdomadaire*, Aug. 24, 1888.

MEDICINE.

UNDER THE CHARGE OF

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On Veratrum Viride in Diphtheria.

In 1881, J. M. Boyd (*Medical Record*, 1888, 33, 627) was induced to give a child of four months, suffering from malignant diphtheria, full doses of Norwood's tincture: viz., a drop every two hours. After four or five doses the pulse fell from 180 to 80, and coincidently with this the abundant deposit melted away with great rapidity, and in twenty-four hours the occlusion of the nose and larynx had so far disappeared that the child was again able to nurse. Since this time the author has seen upward of seventy cases of the disease, and in no instance has the timely use of veratrum disappointed him. The medicine should be given early and in full doses, and made the essential feature of the treatment; the slowing of the pulse being the *sine qua non*.

The pulse of diphtheria is characteristic; being tense, wiry, and rapid. The viciousness of the attack may be better measured by the tension and speed of the pulse than by any other feature. If the heart is slowed by the veratrum, the rapidity of the circulation is lessened and the inflammatory processes about the seat of lesion are mitigated. Under the positive influence of the drug, the system appears to have a tolerance for the diphtheritic poison, and there is shown a resistance to the further progress of sepsis and to the spread of the membrane. The author does not fear asthenia from the use of veratrum, but dreads rather exhaustion from persistently rapid heart-action. Rest the tired heart, and the economy will take on recuperation and resistance to the poison, and the best protection against asthenia will be found. The dose for an adult is three drops every two hours, adding one drop each dose until the pulse is reduced to 60 or 70 per minute. If vomiting is a troublesome symptom, the dose must be increased cautiously or omitted occasionally.

Antipyrine as a Specific against Whooping-cough.

Sonnenberger (*Therap. Monatsheft.*, August, 1888), writing again on this subject, considers antipyrine a specific in this disease. He gives it in somewhat smaller doses than those used for fever, administering about as many centigrammes as the child is months, and as many decigrammes as it is years old. With older children a proportionately smaller dose will prove efficient.

The drug is best given three times daily with, perhaps, an additional dose at night. In these small doses it can be given continuously for weeks without injurious results, a very important matter, since it is on this continuous administration of antipyrine that rapid recovery depends. In general, the earlier in the disease the drug is employed the better is the result. If the opportunity presents itself to use the drug before the characteristic attacks have been fully developed, we may often cut the disease short, or at least change it into the appearance of a mild bronchial catarrh. If the treatment be commenced in a somewhat later stage, the symptoms may be very greatly reduced in severity, and but six or seven mild paroxysms will occur in the twenty-four hours. In still later stages, when the disease is at its height, the action of the drug is by no means so remarkable, but the good influence is still seen after some days. The attacks become milder and less frequent, and expectoration more abundant; and the disease rapidly goes into the *stadium decrementi*.

Antefebrin acts far less favorably than antipyrine in controlling whooping-cough.

Catalytic Action of Electricity in Rheumatic Affections.

G. L. Walton (*Boston Medical and Surgical Journal*, 1888, cxix. 101) quotes several writers in evidence of the catalytic action of electricity. It appears that it is especially useful in rheumatic affections of muscles and joints of a subacute type, and that by the use of galvanism exudation and pain may be made to disappear. The author reports two cases treated successfully in this way. The first was one of rheumatism of the wrist and hand, which had lasted two months and had rendered flexion of the fingers impos-

sible. Motion and massage were painful, and there was some atrophy of the muscles of the hand and forearm. Electricity was employed for twenty minutes daily; the galvanic current being passed through the wrist and fingers, and galvanism and faradism being applied to the muscles. Improvement began at once, and by the end of a week pain had nearly disappeared and motion was returning; and at the end of five weeks treatment was discontinued as recovery was nearly perfect. The second case was one of rheumatic swelling of the ankles which had lasted some months and gave considerable annoyance, though unaccompanied by pain or redness. In this instance faradism was used every other day. The swelling could be seen to lessen during the application, the return of it between the applications became less marked, and in two and a half months the ankles were virtually normal. Walton has treated several cases of muscular rheumatism with excellent results, particularly when the muscles of the neck and back were affected. Several instances of swelling of the ankles, not of a rheumatic nature, and cases of pain in the heels and soles caused by overuse were surprisingly benefited by electricity. In this class of cases the faradic current seems to answer as well as the galvanic.

Acute Febrile Icterus (Weil's Disease).

Since the publication of Weil on this subject, there have appeared articles by Goldschmidt, Wagner, Roth, Haas, Fiedler, and Hueber. Aufrecht has also reported two cases, but it is questionable whether they are correctly included under this heading. Nauwerk (*München. med. Wochenschr.*, 1888, 579) now publishes two new cases of the affection. In the first, an insane woman of thirty-five years, the disease began suddenly with fever, and on the second day intense icterus appeared over the whole body, and enlargement of the spleen was evident. There rapidly developed salivation, fall of temperature, profuse sweating, coma, and death on the third day of the disease. There was no vomiting or diarrhœa. At the autopsy there was found a necrosing inflammation of the small intestine, producing small scattered ulcers reaching to the muscular layer. The liver and kidneys exhibited extreme albuminoid, fatty, and necrotic degeneration of the parenchyma, with scattered foci of inflammatory cellular infiltration. The absence of bacilli and the extent of the degeneration indicated the presence of some toxic cause (ptomaine).

The second case occurred in the person of a butcher, who was suddenly taken sick with a chill, followed at once by the evidences of being extremely ill. There were profuse sweats, increased frequency of the pulse, and high temperature. By the third day icterus developed, and there was frequent vomiting with meteorism, mental oppression, and delirium. By the sixth day diarrhœa appeared; by the seventh, there was transitory diminution of the fever and rapidity of the pulse, and the liver became enlarged. Later the spleen was enlarged; on the sixteenth day a roseolous eruption was visible; and on the eighteenth day death occurred from cardiac weakness and œdema of the lungs. The autopsy revealed almost the same changes in the liver and kidneys as were seen in the first case. There was, however, an entire absence of any lesion of the gastro-intestinal tract.

Endemic Cerebro-spinal Meningitis.

Cerebro-spinal meningitis, says Townsend (*Boston Med. and Surg. Journ.*, 1888, cxix. 52), first appeared in this country in 1806. Since then there have been numerous epidemics in different parts of the country, and, besides this, it is rapidly becoming endemic in many of the cities, especially in New York, Philadelphia, Chicago, and Jersey City. Since the great epidemic of 1872 the disease has not been absent from New York. It is evidently an infectious disease, and is as clearly not contagious, in the ordinary sense of the word. Numerous investigators admit the presence of a micrococcus in the purulent fluid of the meninges; and some have claimed that this is identical with that found in pneumonia. There seems, indeed, to be some relation between pneumonia and cerebro-spinal meningitis, when viewed from a clinical standpoint alone, since they not uncommonly occur together in the same patient. If one and the same microörganism were always the cause of both affections, there should exist a tolerably constant relation between the number of cases of the two diseases. The author shows by tables and graphic charts that no such relation exists, as applies to Boston at least; and he concludes that either the ordinary croupous pneumonia has a different origin from the pneumonia which is produced by the same organism as is cerebro-spinal meningitis, or certain uncomplicated cases of the latter affection are caused by a different organism from the one which is thought to produce both diseases. Clinical as well as bacteriological studies show that cerebro-spinal meningitis is related in some way to acute rheumatism on the one hand, and to ulcerative endocarditis on the other.

We may have, first, the fulminant form of the affection, in which death takes place in twenty-four hours or less; second, the abortive form, characterized by headache, stiffness of the neck, and, perhaps, a few herpes vesicles, with recovery in a few days; third, the intermittent form, in which there are intermissions at irregular intervals, when the temperature is normal, and almost all the other symptoms may nearly entirely disappear; and, fourth, the typhoid form. As regards differential diagnosis, the fulminant form is usually readily recognized, but where very rapidly fatal, may be confounded with cerebral hemorrhage. The absence of much elevation of temperature aids in distinguishing the latter affection. Tubercular meningitis is indicated by a family history, a gradual onset, the evidence of tubercles deposited elsewhere, and the absence of herpes. Retraction of the head may occur in basilar tubercular meningitis, but is rarely marked. If tubercles invade the spine, the symptoms of cerebro-spinal meningitis are exactly reproduced. In simple meningitis there is a history of traumatism or of middle-ear disease. Traumatism is said, however, to have produced the other affection.

The onset of scarlet fever may be marked by severe cerebral symptoms, but the diagnosis will not long remain in doubt. When it terminates fatally within twenty-four hours without the appearance of a rash, the diagnosis from cerebro-spinal meningitis may be impossible. The frequent absence in children of the cardinal symptoms of pneumonia may render the diagnosis obscure. Holt says that a slow, irregular, intermittent pulse may be found in meningitis, but not in pneumonia. A persistent high temperature, with but little variation, is characteristic of pneumonia, but not of meningitis. If

in pneumonia there develop persistent retraction of the head, arching of the fontanelle, severe headache, retardation of the respiration, and frequent convulsions and coma, the contemporaneous existence of cerebro-spinal meningitis is probable. Typhus fever develops more slowly, and a copious macular eruption appears on the fourth to fifth day. A temporary pain and stiffness of the neck muscles may be caused by rheumatism; but there is no headache, and recovery takes place in a few days. The prognosis of cerebro-spinal meningitis varies extremely. Twenty to seventy-five per cent. die, but very severe cases may recover. The treatment consists in opium in large doses to relieve the extreme pain, bromides, cold applications to the head and spine, a sustaining diet, and stimulants as indicated. The author closes his paper with the reports of two cases coming under his observation.

On an Affection Characterized by Astasia and Abasia.

Under this title Blocq (*Arch. f. Neurolog.*, 1888, xv. 24) describes a condition which has been spoken of by other writers under various names, indicating the inability, on the part of the patient, to stand or walk, although the sensibility, motor power, and the coördination of other movements of the lower extremities remain intact. From his own observations and those of others, he concludes that the disease usually begins rather suddenly with or without painful sensations, and generally after slight trauma or violent psychical disturbance. The characteristic symptoms vary in intensity, and in the lightest cases consist simply of an uncertainty in standing and walking. The effect of closing the eyes is inconstant; the tendon reflexes are normal. Locomotor movements of other sorts, as jumping, walking on one leg or on all fours, climbing, etc., are unaffected, and all movements are possible when the patient is in the recumbent position. There are often other nervous affections chiefly of an hysterical nature. The course of the disease is capricious, though recovery, often sudden, is the rule. The diagnosis is not easy, since the disease is to be distinguished from tabes, Friedreich's ataxia, hysterical ataxia and paraplegia, chorea, etc. As regards etiology, difficult parturition and typhoid fever have been noted as causes, in addition to those mentioned. Often no cause can be found. The same therapeutic means must be employed as in hysteria.

Rapidly Fatal Chorea.

Cook and Beale (*Brit. Med. Journ.*, 1888, i. 795) report a fatal case occurring in a girl of nine years, in whom the choreic movements constantly became worse; delirium developed with slight fever, rapid and feeble pulse and rapid and interrupted respiration; and death suddenly occurred one hundred and thirty hours after the onset of the disease. The autopsy revealed extreme anæmia of the pons and medulla, but no other changes of note in other parts of the body.

A Clinical Consideration of Sixty Cases of Cerebral Paralysis in Children.

In the last four years at the Out-patient Department of the Children's Hospital, Boston, Robert W. Lovett (*Boston Medical and Surgical Journal*,

1888, 118, 641) has observed some sixty cases of motor disturbance in which there seemed reason to believe that the disability was of cerebral origin. They could be divided naturally into three groups: 1. Hemiplegia. 2. Spastic paralysis of both legs. 3. A class of nondescript cases, perhaps best called incoördination or idiocy. Of the first group there were twenty-six cases, ranging from one and a half to fourteen years of age. Two-thirds of these were cases of the adult type, while in the others there was more or less spastic paralysis of both legs as well. There was, in every case, at the time of observation a certain amount of impairment of motion of the diseased side. Muscular atrophy was, as a rule, slight compared with that seen in infantile spinal paralysis of the same duration. A considerable degree of bone shortening was seen in cases which had lasted some time. Facial paralysis had been present in at least half the cases, and strabismus was still observed in more than half. Mental impairment was common; only six of the twenty-six cases being of average intelligence. Seven cases were aphasic. Though abnormal parturition is so often the cause of cerebral injury in the child, yet in the cases of hemiplegia and spastic paralysis there existed no such universal factor, over half of them being born by normal labor which the mothers described as easy. All but two of the cases of hemiplegia were noted within the first two years of life. An illness of some sort, as severe crying, bowel irritation, indigestion, or convulsions, marked the onset of the disease in nearly all the patients. Spastic paralysis, in which the legs, and sometimes the arms, are straight and rigid, the gait is on the toes, the legs are often crossed, the reflexes are increased, and there is not much wasting of the muscles—occurred in sixteen cases, not including those in which it complicated hemiplegia. In most of them the disease was noticed immediately after birth. The mental impairment was even more general than in hemiplegia. In more than half there was strabismus; seven were completely aphasic; and twelve were unable to walk at all. In seven cases the hands were also affected.

The question whether spastic paralysis in children is spinal or cerebral in origin has been much discussed. The author lays stress on the fact that in all his cases there was not one which was free from cerebral symptoms. He quotes several writers to show that the cerebral origin is now the generally accepted cause. He has examined the records of seventy-seven autopsies of cases of hemiplegia and of spastic paralysis, and found uniformly a lesion of the motor tract, atrophy and retarded development of the brain, and descending degeneration of the pyramidal tracts and lateral columns of the cord. It seems unquestionable that the disease sometimes originates in defective development of the nervous centres, especially the pyramidal tracts. Since hemiplegia and spastic paralysis differ but little in the original lesion, it is not strange that they should be sometimes associated. It would seem that the first affection may gradually pass into the second.

The diagnosis of cerebral from infantile spinal paralysis can usually be made without difficulty, except at the beginning, when it is practically impossible. Cerebral paralysis is chiefly distinguished by being oftenest hemiplegic, while the tendon reflexes are increased, wasting comes on but slowly, and the reaction of degeneration does not exist. The prognosis of hemiplegia is grave; the chances being that mental enfeeblement will develop

and possibly spastic paralysis. In pure spastic paralysis it is probable that the child will be able to walk somewhat, if the case is not severe, and eventually to talk more or less badly. The treatment of these affections consists in mental training, and in keeping the muscles in as good a condition as possible by the use of the faradic current and massage.

The third group of cases resembles superficially those which have been already described, but both definite paralysis and spastic rigidity of the muscles are absent, and idiocy obscures everything. Either the children were too limp to stand at all, or they stood with the feet far apart, and walked with a staggering gait and with frequent falls. The reflexes were sometimes normal, sometimes increased. Disturbances of sensation were common. Nine out of thirteen cases, which the author saw, were congenital, but it was hard to find any assignable cause for them. None of the cases showed any tendency to improvement during the time they were under observation. In none of the cases was the birth abnormal or difficult, and the author emphasizes the fact that in no class of cases of infantile cerebral paralysis does difficult labor have the influence which has been attributed to it.

The Cerebral Palsies of Children.

Osler (*Medical News*, July 14, 21, and 28, August 4 and 11, 1888) has reviewed the clinical material at the Philadelphia Infirmary for Nervous Diseases and at the Pennsylvania Institution for Feeble-minded Children at Elwyn. Three divisions are made: hemiplegia, 120 cases; bilateral hemiplegia, 19 cases; and paraplegia, 11 cases.

Hemiplegia is a common affection in children, according to some writers occurring as frequently as spinal paralysis, but at the Philadelphia Infirmary for Nervous Diseases the proportion is not quite 1 in 4. Of the 120 cases, 5 were boys and 63 girls. There was right hemiplegia in 68 and left in 52 cases. Of 110 cases at which the age at onset was noted, 15 were congenital, and in 81 the disease came on within the first three years of life. In 9 cases the children were delivered with forceps; 3 were due to trauma; 16 followed the infectious diseases. In the majority of cases the disease begins with convulsions and the hemiplegia is noticed when the child recovers consciousness. Incomplete recovery is the rule, but the patients are liable to the serious sequences of epilepsy and mental disorders. 31 cases presented post-hemiplegic movements. The result of an analysis of 90 autopsies is given. In 16 instances there were vascular lesions, as plugging of a Sylvian artery in 7, and hemorrhage in 9. The age at the outset in this group was high; as, excluding 3 congenital cases, there was only 1 under three years. Atrophy and sclerosis were met with in 50 cases. 2 instances are recorded of sclerosis from the Elwyn Institution. Porencephalus was present in 24 cases.

Bilateral spastic hemiplegia is characterized by a spastic condition dating from or shortly succeeding birth. There is no wasting; the reflexes are increased, the mental condition profoundly disturbed and ataxic, and athetoid movements of the most exaggerated kind may occur. 19 cases are described; 2 of bilateral athetosis. In 16 reported autopsies the condition has been either cortical sclerosis or porencephalus.

Spastic paraplegia in children is closely related to bilateral hemiplegia, but

the arms are not affected. It dates from birth or comes on within the first years of life. The legs are stiff, the heels raised, and there is strong adductor spasm. The patient walks on the toes or there is cross-legged progression. The intellect is not so profoundly impaired as in bilateral hemiplegia. 11 cases are described. The morbid anatomy of this affection is not yet clear. Only one autopsy by Förster is reported (from the Dresden Children's Hospital). Cerebral lesion with descending degeneration was present. The reasons are given for believing it to be of cerebral origin, as Heine suggested many years ago, when he named the disease paraplegia cerebralis spastica.

In the discussion on the pathology of the cerebral palsies, apoplexia neonatorum is held to play an important part in the production of the bilateral hemiplegia and paraplegia. In hemiplegia there is still much doubt as to the nature of the initial lesion. Strümpell's poliencephalitis has not yet been demonstrated anatomically, though the view is very plausible, and subsequent autopsies may show the truth of it. The relation of the cases to the infectious diseases may be due to embolic processes associated with endocarditis, to arteritis or periarteritis such as has been described in the heart in typhoid fever, or to changes in the cerebral gray matter similar to those which have been described in the cord in measles by Barlow. The conclusion is reached that infantile hemiplegia is the result of a variety of different processes, of which the most important are: (1) Hemorrhage, occurring during violent convulsions or during paroxysms of whooping-cough. (2) Post-febrile processes: (*a*) embolic, (*b*) endo- and periarterial changes, (*c*) encephalitis. (3) Thrombosis of the cerebral veins. Under the section on treatment the question of operative interference is discussed and two cases are noted in which trephining was performed for Jacksonian epilepsy following infantile hemiplegia. These are held not to be suitable cases for operation.

Tetany.

J. Hoffmann (*Deutsch. Arch.*, 1888, xliii. 53) publishes a valuable paper, based on eleven cases of tetany, reported in full, and accompanied by numerous references to cases of other observers and their opinions concerning the disease. In all but one of the author's patients the affection began between the ages of sixteen and twenty-five years. He is disposed to believe that the nature of the occupation is not without influence on its etiology, and that shoemakers, seamstresses, clerks, etc., are, perhaps, especially liable to it. After reviewing at some length the literature relating to the bearing of the thyroid gland on tetany, he concludes that, in all probability, the removal of this organ is one of the etiological factors. He does not agree with Strümpell that there are endemic influences in its production. The spasm was rather widely spread in the cases which he reports, and was always bilateral. The attacks lasted from several minutes to some hours, and in one instance ten days. The premonitory fibrillar muscular trembling was absent in most cases; the tendon reflexes were usually normal, but in one case diminished, and in another nearly absent. The attacks of spasm were always preceded or accompanied by paræsthesias. Trousseau's symptom (the production of an attack by compression of the main artery of a limb) was always present during the height of the disease, while the compression of a nerve had this effect in but

one case. The disappearance of this symptom is in no sense a sign that the disease has terminated, but only that it is in abeyance. The galvanic and faradic electrical excitability of the nerves was much increased in all cases in which it was carefully examined; and even the facial and the hypoglossal nerves may share this excitability. An increase of the mechanical excitability of the motor nerves was absent in but one instance. A series of experiments convinced the author that the mechanical and electrical excitability of the sensory nerves is increased. The disease lasted in the author's cases from half a year to twenty-one years. Most commonly the attacks occur in groups, lasting some weeks, and with variable periods between them, in which there exist only certain symptoms of latency; or the intervals may continue for years, with absolutely no sign of the affection.

According to most authorities, the prognosis is favorable, though the disease may last for years. Death occurs only exceptionally, from exhaustion or spasm of the diaphragm. Certain of the author's cases exhibited evidences of paralysis, for which the tetany was apparently responsible. Frequent shedding of the finger-nails and a brown pigmentation of the skin of the hands and face was observed in one instance, and the author considers the probable cause of the latter to be nervous influence combined with repeated small extravasations of blood into the skin, induced by the muscular spasm. Hoffmann reports the results of autopsies which have been made, and quotes extensively the opinions of various writers concerning the pathological anatomy of tetany; all of which indicates that, though fine molecular nutritive changes of the nervous system are almost universally considered to be the cause of the disease, making it, therefore, a neurosis, the seat of the changes is still a much disputed point. He obtained the best therapeutical results from bromide of potash, morphia, and the galvanic current. In an appendix the author reports four additional cases of the affection, in two of which shedding of the nails took place, accompanied, in one instance, by falling out of the hair. He shows still further the positive influence of extirpation of the thyroid gland on the production of tetany, and calls attention to the fact that attacks seldom occur in summer, cold seeming to be a strongly exciting factor.

Revival of Tartar Emetic in Treatment of Pneumonia.

The amount of attention that has been given this ancient use of an old drug shows that it has not been so quite forgotten everywhere as it seems to have been here in America. Cf. Mosler, *Deut. med Woch.*, 1887, p. 1031; Brückner, *ibid.*, 1888, 1, No. 22, p. 447; *ibid.*, August 16, 1888, p. 686.

In Germany the drug has been given after the method of Lebert. Of tartar emetic gr. jss–gr. v are ordered in ℥vj of water, of which solution ℥ss (= gr. ½ +) is given every hour till vomiting or diarrhœa occurs, and then every two hours. In most cases these symptoms from the side of the gastro-intestinal tract will cease even under the continued use (Lebert, Brückner); if not, or if opium does not control them, the remedy is to be given up. The tolerance is very variable. Usually, after one or two doses, there is vomiting, which brings great relief, then four to eight watery stools, then sweating and an increased expectoration. The pain and dyspnœa are much relieved. The

well-ascertained physiological action of tartar emetic is in diminishing the blood-pressure, and its therapeutical action in pneumonia is probably to be found in this effect on the pulmonary circulation (Lebert). The clinical results from its use in the hands of these observers have been encouraging. Certainly most physicians would rejoice to have forty successive cases in hospital practice without a death! (Mosler).

Dr. Arthur Jamison, basing his conclusions on the careful study of 213 personally observed cases, in 155 of them has acquainted himself with the later history of the case and secured the opportunity of a physical examination at a period not less than two years after the attack. This after-history, he considers, should be the guide to treatment, for in 74 of the 155 examined he found traces of an unresolved pneumonia, viz., dulness of affected side, *râles*, etc., and 12 of the cases died of phthisis. Of the 81 found free from signs 65 *had been treated by tartar emetic.* Not only did physical signs persist in many cases, but he ascertained that many patients, though discharged as well after treatment by the usual methods, had for months some cough and expectoration, constant feeling of uneasiness, flatulent distention after meals, and in general were not up to par. On the basis, therefore, of much comparative trial of all methods of treatment, coupled with this after-investigation, Jamison recommends tartar emetic as a continued remedy, ascribing to it the merits of relieving the distress of the first stage and of easing the strain of breathing, while it is superior to everything else in inducing the greatest degree and rapidity of resolution, as tested by the after-condition of the lung. He gives it in doses of one-twentieth of a grain for young adults every hour, but less frequently to older persons. When the symptoms are relieved it is given less often, but still continued several days or even a week after defervescence. In no case of the large number treated has it caused either vomiting or diarrhœa. It is combined with a little paregoric. Dilute nitric acid is preferred in the after-treatment.—*Brit. Med. Journ.*, June 30, 1888.

Paczkowski also reports a very large series of 532 pneumonias treated by Kermes mineral (antimon. sulphurat.). The mortality in this great series was only 1.69 per cent! The drug should be freshly prepared, and the earlier given the better. He makes the astonishing statement that if given on the second or third day the crisis occurs within twenty-four hours, sometimes in eight. It is given in the following formula:

Kermes mineral	gr. xxx.
Ext. digitalis	gr. ijss.
Opii	gr. j.

Divide in pil. no. xxxij. Two pills every two hours, and after the crisis two every three hours till convalescence is established.—*Deut. med. Woch.*, 1888, No. 29, p. 607.

Creasote and Iodide of Potash in Phthisis.

G. Stuecker (*Therap. Monatshef.*, 1888, 385) has studied the conditions for the employment of these two drugs, and concludes from his experience that each has its limited sphere of action. Creasote is useful in those cases of phthisis of the nature of caseous pneumonia; while iodide of potash is to be preferred in fibroid contraction of the lung with adhesive pleuritis. In

mixed forms of cheesy and fibrous tuberculosis the one or the other of the two drugs is to be employed, depending on whether the cheesy or the fibrous element predominates. In a third group of cases, in which the involvement of the bronchial mucous membrane produces a purulent or mucous bronchitis, the employment of the iodide is entirely excluded, and the balsams are to be given with or without creasote. A fourth group, in which the symptoms of emphysema are predominant, is to be treated with iodide of potash. Contra-indications for the use of creasote are tuberculosis of the intestine, amyloid degeneration, and the late stages of phthisis. Contraindications for the use of iodide of potash are tendency to hæmoptysis, even slight lesions of the larynx (on account of danger of œdema of the glottis), ulcerative processes in the trachea, insufficiency of the kidney of whatever nature, and severe iodism.

Movable Heart.

Rumpf (*Therap. Monatshef.*, 1888, 382) reports five cases of extreme movability of the heart, arising after the treatment of obesity or from emaciation. In one case, in which the treatment had caused a loss of fifty pounds, all the organs were normal, and when the patient was erect or lying on the back, the cardiac dulness was in the usual position and of the usual shape. When, however, he lay on the left side, the apex beat was removed to the middle axillary line, and the cardiac dulness left the sternum, only touching it at the insertion of the third rib. If now a position on the right side was assumed, the absolute heart dulness disappeared entirely, and a relative dulness of only two centimetres on each side of the sternum was found, extending from the fifth rib to the sixth intercostal space, while the impulse was felt close to the sternum in this space. The total range of movement of the apex beat equalled thirteen to fourteen centimetres. The physical examination of the other four cases gave very similar results. The symptoms of all were weakness, dizziness, and inability to lie on the side. When the attempt to assume this position was made, there developed pain, oppression, a sense of anxiety, and an increase of fifty to sixty beats in the pulse rate.

An interesting question is, whether the loss of fat resulting from the treatment was the cause of the abnormal movability. The examination of a large number of healthy men showed that only a slight displacement of the apex beat or of the cardiac dulness occurred on change of position. On the other hand, in a number of advanced cases of pulmonary tuberculosis with great loss of bodily weight there was a very considerable displacement of the apex beat when the patient was lying on either side. The same condition was observed in a patient with progressive muscular atrophy, who had lost forty pounds weight. The author does not hesitate, therefore, to consider the treatment for obesity the essential cause of the abnormal movability of the heart in the cases which he reports.

Congenital Narrowness of the Aortic System.

O. Fraentzel (*Deutsch. medicin. Wochenschr.*, 1888, 589) reports several cases of disease of the circulatory apparatus apparently due to a congenital

narrowness in the aortic system. Two of the cases were confirmed by autopsy. The subjective symptoms are those of heart disease, but the heart sounds are clear, the second sound often accentuated, and the heart exhibits some dilatation. The symptoms are especially like those of cardiac overstrain, but develop in persons who have undergone no, or but slight, exercise. The hypertrophy of the heart begins in youth, is followed by dilatation, and finally by the signs of insufficient compensation. The arteries of the body are small, their tension high, and the face often strikingly pale. It is probable that the cases of congenital narrowness of the aortic system are much commoner than has hitherto appeared.

A Study of the Arteries and Veins in Bright's Disease.

Arthur V. Meigs (*Medical Record*, 1888, 34, 1) reviews somewhat the state of the question regarding the origin, nature, and relations of Bright's disease and of heart disease, and illustrates his remarks by microscopic drawings of sections of the bloodvessels. He concludes that in the so-called chronic Bright's disease we have to do with an affection widespread in its effects, and that the most characteristic and probably most important changes are those of the intima of the arteries; in which changes it is likely that the veins always participate. Alterations in the muscular coat and the adventitia, though often present, are probably secondary to those of the intima, and are by no means so important in their effects. The process seems to be coextensive with, and, it is likely, is a part of the change in the large arteries which is so common and so well known as atheroma. Finally, in the absence of knowledge concerning the participation of the nerve substance, it seems most probable that the earliest of the now known pathological steps to make its appearance is the alteration of the intima of the bloodvessels.

The Etiology of Acute Bright's Disease.

Julius Mannaberg (*Centralbl. f. klin. Med.*, 1888, 537) reports eleven cases of acute Bright's disease, in eight of which he found the streptococcus discovered and described by Lustgarten and himself some time ago. The quantity of the cocci always stood in direct proportion to the severity of the disease in general, and to the variations in the phases of the individual cases. In fatal cases the urine often contained enormous numbers of the microörganisms. In other cases the numbers diminished as the secretion of urine increased, and completely disappeared when the other symptoms began to abate. They could not be distinguished morphologically from the streptococci of erysipelas and of pus, but through cultures, which the author describes, were found to be entirely different from species previously known. They may be stained by various aniline colors, but it is necessary to avoid heating the cover-glass in drying the specimen. Control experiments made on the urine of various patients with pathological conditions, including contracted kidney and passive congestion, amyloid degeneration, and tuberculosis of this organ, invariably failed to reveal any of the cocci. Experiments with animals showed that the cocci were decidedly pathogenic, at least for dogs and rabbits. There were produced, namely, more or less intense evidences of disturbance of the kidneys three or four days after inoculation. Renal epithelium, blood, casts, hæma-

toidin crystals, albumen, and streptococci were found in the urine, and the last mentioned proved themselves identical with those used for inoculation. The author believes, therefore, that certain forms of idiopathic acute Bright's disease are the result of the action of bacteria; it being already admitted that nephritis occurring in the course of the general infectious diseases is of this nature.

Hydrops Intermittens Articulorum.

Fridenberg (*Medical Record*, 1888, 33, 657) reports, from his own practice, two cases of a peculiar vasomotor affection of the joints, and collects twenty-four others from the literature of the past twenty years. This consists of a serous exudation into one or more joints, arising without appreciable cause, and recurring and subsiding spontaneously at certain definite periods. It would certainly appear to be a vasomotor neurosis, since in five cases palpitation, syncope, exophthalmos, rigors, and transpiration were also noted; and in two instances there were fully developed symptoms of Basedow's disease. Various marked emotional disturbances were present in others. Pregnancy exerted a remarkable influence in eight out of nine cases in which it occurred, in that there was meanwhile a complete cessation of the attacks. The exact pathology of the affection is uncertain, as no case has come to autopsy yet. The rapidity with which the effusion appears and is again absorbed, shows that it is a passive non-inflammatory dropsy due to some temporary interference with the vasomotor control. Periodicity is a very marked characteristic, as it often is of other vasomotor diseases. It has not in these cases anything to do with malaria. In the only one of the author's cases to whom treatment could be regularly given, great permanent improvement, and even temporary cure followed the application of galvanism to the medulla, combined with tonic and alterative medication.

Calcium Chloride in Glandular Affections of the Neck.

Thomas J. Mays (*Archives of Pediatrics*, 1888, 471) reviews the employment of calcium chloride, formerly used in scrofulous affections. He has used it for several years, especially in scrofulous affections of the neck, and found it to act admirably in many cases in which cod-liver oil internally and iodine externally had proved futile. It can be given in milk or water in doses of two to four grains for children, and ten to twenty grains for adults. The best vehicle, however, is syrup of sarsaparilla. It must not be confounded with the chloride of lime used for disinfecting; and to avoid this confusion the *granular* chloride of calcium should be ordered.

Naphthol in Stomatitis.

D. W. Loney (*Medical Record*, 1888, 33, 664) has used naphthol in several cases of stomatitis with good results. It is indicated wherever a reliable disinfectant and antiseptic is required. In a case of mercurial stomatitis it gave almost immediate relief to many of the unpleasant symptoms, and in a case of stomatitis in a woman which had resisted ordinary treatment it was all

that could be desired. It may be used as a mouth wash or gargle, is not unpleasant in taste, and is non-poisonous in its effects on the system.

Lactic Acid and Diet in Infantile Diarrhœa.

Frank Whitefield Shaw (*N. Y. Med. Journ.*, 1888, xlviii. 123), following the rules laid down by Hayem, has been employing lactic acid in the green diarrhœa of infants. He has also extended its application to all forms of infantile diarrhœa, and with excellent results. Since 1887 he has administered this treatment to over 100 patients, varying in age from ten weeks to twenty-four months, and with great variety in the intensity of the disease. A child under twelve months received one-half a teaspoonful of a two per cent. solution every hour; or if the discharges are very frequent, a teaspoonful every hour for six doses, and then a half a teaspoonful every hour. Over twelve months, a teaspoonful is the ordinary dose. Within a period of twelve to seventy-two hours the character of the alvine discharges begins to change; the greenish becoming less watery and assuming a yellow tint, and the yellowish watery, or the bloody passages assuming a greater consistence without the offensive odor. The general results were so satisfactory that the author has abandoned all other drugs in this disease. Under its use also vomiting is controlled, temperature reduced, intestinal pain quieted, and restlessness and sleeplessness overcome.

As most of the patients treated were of the poorest class, he gave special attention at the same time to a proper regulation of the diet. An exclusive diet, either of breast milk or of artificial food, did not seem to give good results. Food too rich in fat cannot well be tolerated, and as mother's milk is sometimes open to this objection, a small quantity of the prepared food was administered before nursing. The proportion of caseine, too, was rendered smaller thereby, and when lactic acid was also employed as the medicine, recovery was usually speedy.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

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Traumatic Aphasia relieved by the Removal of a Blood-clot from the Cerebrum.

Ball (*Dublin Journal of Medical Science*, September, 1888) records a case of peculiar interest successfully operated on by him for the cure of aphasia. The patient had been struck a blow in the head with a penknife ten days before admission to the hospital. He had noticed, since the blow, increasing difficulty in using the right words. On examination a small scab was found

adherent to the scalp, over the squamous portion of the left temporal bone. This, when detached, showed a cicatrix extending deeply through the temporal muscle. There was well-marked motor aphasia, word-blindness, and word-deafness. No paralysis could be detected. Five days after admission, as the symptoms had increased, an operation was determined on. A flap was turned down including the cicatrix, and a wound of the squamous portion of the temporal bone, such as could be caused by the small blade of a penknife, was found. A circle of bone was removed, containing in its centre the wound in the bone. The knife was found to have penetrated the dura mater and brain. The dural wound was enlarged and a Sims' forceps was passed into the brain wound, and was gradually separated. A dark-colored blood appeared and was extruded by the internal brain pressure; more clot was removed by Sims' forceps and weak perchloride irrigation, a drainage tube was introduced, and the external wound was sutured. On the evening of the same day the patient carried on a long conversation with very few mistakes in his selection of words. The following morning aphasia was again increased, but disappeared on cleaning the blocked drainage tube. The recovery was, after this, uninterrupted and complete.

Traumatic Sub-dural Abscess of the Brain.

Stokes (*Dublin Journal of Medical Science*, September, 1888) alludes to eleven recorded cases of sub-dural traumatic abscess treated by trephining, with successful issue in five. He also records two cases operated on by himself, in the first of which the abscess was not reached and the patient died. In the second the abscess was only found by sinking a hypodermatic needle to its whole depth into the brain substance. An ounce and a half of pus was removed, and the abscess cavity was washed out with a one per cent. solution of carbolic acid.

In connection with these cases Stokes makes the following propositions:

1. That after the primary symptoms of cerebral traumatism have subsided, there is frequently a latent period of varying length during which there are no distinct brain symptoms connected with abscess formation whatever.

2. That their appearance is, as a rule, sudden, and, if uninterfered with, run a rapidly fatal course.

3. That the occurrence of pus production resulting from cerebral traumatisms is not incompatible with a perfectly afebrile condition.

4. That this latter fact will probably aid in differentiating traumatic cerebral abscess from meningeal or encephalic inflammation.

5. That both as regards color and consistence there is great variety in the contents of cerebral abscess cavities, and that, as shown in Wilm's case, published by Rose, of Berlin, they may be transparent.

6. That antisepticism has largely diminished the risks of the operation of trephining.

7. That having regard to the great mortality of cases of cerebral abscess when uninterfered with—viz., from 90 to 100 per cent.—the operation is indicated even when the patient is *in extremis*.

8. That in the case in which the trephine opening does not correspond to the situation of the abscess, exploratory puncture and aspiration may be employed.

9. That by the adoption of this measure the necessity for multiple trephine openings can be largely obviated.

10. That the employment of a blunt-pointed aspirating needle, as suggested by Rentz, is probably the safest mode of exploration and excavation.

11. That drainage is desirable in the after-treatment of such cases.

12. That both during and subsequent to operative interference in these cases a rigid antisepticism is imperatively required.

Splenectomy.

Two cases of splenectomy, performed by Fritsch, are reported by Asch (*Archiv für Gynäkologie*, Bd. 13, Heft 1).

1. Married woman, æt. thirty-one, has menstruated regularly since her eighteenth year till the middle of May, 1887. Since the second week in March has suffered slight pain in the region of the spleen, and has felt a small nodule beneath the lower border of the ribs. For this and loss of appetite she consulted a physician. Examination showed a moderate enlargement of the spleen, without noticeable change in other organs. Together with increasing languor and complete anorexia there was a steady increase in the size of the tumor.

Admitted to the hospital June 20, 1887. Present condition: small, feeble woman, of moderately anæmic appearance. Thoracic viscera normal; abdomen projected on the left side by a firm movable tumor, extending from the left nipple line two and two-fifths inches below the border of the ribs, to the linea alba, midway between the umbilicus and symphysis; about nine inches in length, in the form of a bean, convexity outward, notched at its upper third. Uterus somewhat enlarged, slightly retroverted, movable, with virginal but patulous os. Blood normal; no disturbance in the proportion of white to red corpuscles. From the rapid growth of the tumor and the healthy condition of the organs, the diagnosis of neoplasm of the spleen (probably sarcoma) was readily made. The condition of the womb indicated pregnancy in its first month.

After the customary preparation for laparotomy, the operation was begun by a four-inch incision in the linea alba, beginning two inches above the umbilicus, and sweeping around the latter to the left. The tumor, dark blue-red in color, had formed no adhesions and was slowly pressed from the abdominal cavity. The pedicle was formed by the two layers of the gastro-splenic omentum investing the vessels. The tail of the pancreas was in close relation to its upper part. The pedicle was transfixed by a needle carrying a double silk thread, tied in two sections, and cut two-fifths of an inch peripherally to the ligatures. The two omental leaflets were then united by a continued suture, and the whole pedicle finally included in a ligature, leaving a small but well-fortified stump. This was coated with iodoform, returned to the peritoneal cavity, and the abdominal wound was closed by means of deep silk sutures and an occlusion bandage. The operation lasted twenty-five minutes.

The case ran an apyretic course; the wound healed by primary intention; the patient was discharged cured in less than three weeks from the time of operation. There was slight swelling of the inguinal and axillary glands, but no enlargement of the thyroid. The examination of the blood showed it to

be normal. The patient complained of a dry throat and some cough. Her pregnancy ran a natural course, and terminated in the birth of a dead child, which one month before had been living. The patient had felt no motion for eight days previous to delivery. Both fœtus and after-birth were extruded with extraordinary ease, and convalescence was rapid and uninterrupted. The cough and the pain in the left side, of which the patient had previously complained, left her; her appetite increased, and she is now in perfect health. The tumor weighed five and a half pounds, and proved, on microscopical examination, to be a lympho-sarcoma.

2. Woman, æt. twenty-six; delivered of a healthy child at full term, February 4, 1887. On the fifth day the patient left her bed, but felt from that time increasing languor and weakness. In spite of a good appitite and the ingestion of an abundance of nourishing food, the patient became rapidly pale and emaciated. Fourteen days after delivery a painful nodule was observed in the splenic region, which rapidly increased in size. There was pain, becoming more acute for a time, but gradually diminishing till in five weeks it entirely disappeared. The nodule, however, grew with great rapidity. After a period of fruitless treatment with quinine, iron, and other medicines, an operation was determined upon. Examination showed an exceedingly large tumor of the spleen. The whole abdominal region of the left side from the ribs to the pelvis was taken up by the smooth, hard swelling. Dulness on percussion began a hand's breadth above the lower border of the ribs, and extended toward the right as far as the ensiform cartilage, downward to the os pubis. A deep notch could be felt a finger's breadth above the navel, in the inner border of the growth. The patient was extremely blanched and emaciated; the pulse was rapid; there was some dyspnœa. No abnormality of any organ except the spleen; no glandular enlargements; no tenderness over the sternum or any other bone; no hemorrhage; no disturbance of vision; menstrual flow slight but regular. Patient complained of great giddiness, constant pain in the head, shaking and shivering of the bones, and extreme exhaustion on the slightest effort, but suffered principally from shortness of breath, and the mechanical burden of her tumor. On examination of the blood the relation of white to red was as one to eight. The patient insisted upon an operation, although medical treatment had produced a distinct gain in strength and general condition.

Incision in the middle line six inches long; no adhesion to the parietal peritoneum. The tumor was carefully pressed from the abdominal cavity, a slight intestinal adhesion was ligatured and tied without loss of blood, the moderately broad pedicle was ligated in several portions, and, four-fifths of an inch peripherally to the line of ligature, the tumor was cut away. The stump was carefully examined, included in a final ligature, and returned to the abdominal cavity. No bleeding could be observed, either from the stump or from a small surface lying near it, where the spleen had been adherent. The hæmostatic forceps placed on the bleeding points of the abdominal wound were removed without a recurrence of hemorrhage, and after a few minutes' observation the incision was closed by deep sutures, placed closer than usual, and a very tight occlusion dressing. No symptoms of danger for four hours, when the patient became rather suddenly short of breath; the pulse was 96 to the minute, and moderately full. No blood was found on the dressings.

The dyspnœa progressively increased till the respirations became gasping, and the patient perished five hours after the completion of the operation. The pulse was never above 100 to the minute, and was, in relation to the other signs of anæmia, surprisingly full.

The extirpated spleen weighed sixteen pounds, and presented the typical picture of leucæmic hypertrophy.

Autopsy. A large coagulum in the subcutaneous connective tissues about the wound. Peritoneal cavity filled with reddish-brown blood. About the former position of the spleen numerous scattered sub-peritoneal hemorrhages. Similar effusions into the great omentum.

Of 90 splenectomies, tabulated by Asch, 51 were successful. The majority of these successful cases were for prolapse. Fourteen times the operation has been successfully performed for the cure of wandering spleen, three times for cystic degeneration, twice for sarcoma, four times for hypertrophy of the spleen, once for echinococcus cyst, once for leucæmic enlargement.

The thirty-nine unsuccessful cases were all subjected to operation for the removal of large splenic tumors. Twenty-one cases were leucæmic. There is more or less probability that the other unsuccessful cases were not leucæmic. Death occurred in most of these cases within a few hours of the operation. The cause of death was, with one exception, extensive bleeding.

From this table it would appear that for various diseased conditions of the spleen extirpation is safe, easy, and justifiable, but that leucæmic enlargement should constitute a distinct contra-indication to the operation. To this opinion Asch does not conform. The danger of leucæmic hypertrophy rests on its bulk, and operations should be undertaken early in these cases. The rule should be, "if it is decided to remove a spleen, whether it be leucæmic or diseased in other ways, an early operation must be advised."

Removal of Carcinomatous Tonsil by External Incision.

Fowler (*Brooklyn Medical Journal*, vii. No. 9) reports a case of primary carcinoma of the tonsil removed by external incision.

Mrs. L., aged sixty-seven, suffered for nine months from an enlargement of the left tonsil, which interfered with deglutition. Two cousins had died of breast cancer. On examination a lobulated slightly movable growth the size of an English walnut was found, occupying the site of the left tonsil. Lymphatic enlargement beneath the posterior border of the sterno-mastoid. Pain, aggravated by swallowing.

Etherized. Head extended and turned to the right. Incision from just below the lobe of the left ear down along the anterior border of the sterno-mastoid to a point slightly below the level of the hyoid bone. To the lower extremity of this incision was carried another, beginning midway between the angle of the jaw and the symphysis menti. The flap was drawn up. External jugular tied and divided; the facial and lingual arteries treated in the same way. The hyoid attachment of the stylo-hyoid was divided, the muscles and other structures retracted, the tumor pressed outward by the fingers passed into the mouth, and all diseased tissues removed by means of the galvano-cautery. The incision was now prolonged backward, the enlarged lymphatics, some of them adherent to the sheath of the common carotid,

were shaved away, and the wound was drained, sutured, and dressed. Healing was, in the main, by first intention. The patient was entirely relieved of her dysphagia, and she suffered from no recurrence of the disease *in situ*, though she finally perished from gastric cancer.

For the performance of external pharyngectomy Wheeler makes an incision from the greater cornu of the hyoid bone to the hyoid cartilage, ligating the superior thyroid artery.

Gussenbauer makes an incision from the ear to the greater cornu of the hyoid. Finding the posterior belly of the digastric, the parts beneath and back of it are divided into the maxillary region.

Weil and Mikulicz make an incision three and a fifth inches long behind the ascending ramus of the inferior maxillary bone, including the parotid gland if necessary. The facial nerve should be spared. The cut is continued along the lower border of the body of the jaw, a double ligature being thrown around the lingual and facial arteries.

Langenbeck, in 1879, opened the pharynx by making an incision beginning midway between the symphysis and angle of the jaw and running downward and outward to the thyroid cartilage; the incision was deepened, and bleeding prevented by tying the vessels before they were cut; if necessary, the hyoid attachments of the stylo-hyoid and digastric were divided.

Cheever incises along the lower border of the body of the jaw, and saws through the inferior maxilla in front of the masseter. The hyoid muscles are divided, the bony fragments are pulled apart, and the tonsil is pushed outward from the pharynx.

Kuester makes an incision beginning at the corner of the mouth, carried back obliquely in front of the insertion of the masseter and thence to the sterno-mastoid. The bone is sawed in the direction of this incision.

Langenbeck divides the cheek through its entire thickness downward and backward from the angle of the mouth to the lower border of the jaw in front of the masseter muscle; from this point the incision curves backward under the jaw to the sterno-mastoid. The jaw is sawn through in the direction of the incision.

The Treatment of Club-foot.

Heinekes's method of treating club-foot is presented by Graser (*Beilag. zum Centralblatt für Chirurg.*, No. 24, 1888) as completely successful in the most marked cases.

Briefly, the method consists in forcible reduction of the deformity, and fixation by means of a plaster bandage. Section of the tendo Achillis is condemned as removing an important aid in the correction of supination and adduction. The first dressing may accomplish very little; subsequently the tissues are more yielding and distinct progress is made by each manipulation. The treatment lasts from six months to a year and a half, according to the difficulty of the case, and is only completed when, on standing without the bandage, the foot rests in complete pronation and dorsal flexion. When this stage is reached further treatment is superfluous.

OTOLOGY.

UNDER THE CHARGE OF

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Syphilis of the Auricle, of the Middle Ear, and of the Internal Ear.

Dr. Jones (*St. Louis Courier of Medicine*, April, 1888) gives the following history of a case: A woman, thirty years old, complained of pain in the right ear. There were also diminution of hearing, and general redness of the membrana tympani. The voice was hoarse, and the entire velum palati deep red. A large cicatrix surrounded the external auditory meatus, reaching to the tragus, the anti-tragus, and part of the concha, while the auricle in general was considerably deformed. Three months later the patient presented herself with an ulceration ten days old, occupying in the left auricle a position similar to that in the right ear. The ulcer had irregular edges, and the cartilage, which was exposed, showed a number of superficial abrasions, which looked as though made with a punch. She complained of pain in her ear, pulsating tinnitus, autophony, and facial neuralgia on the left side. Three days later the left ear became suddenly and absolutely deaf. The diagnosis of syphilis was confirmed by the appearance of a double perforation in the velum palati in the course of a few days.

Foreign Bodies in the Ear.

Bezold (*Berliner klinische Wochenschrift*, July 2, 1888) formulates the following conclusions regarding the management of foreign bodies which have become impacted in the ear.

1. The removal of foreign bodies from the tympanic cavity by the way of the auditory canal, regardless of the swelling of the walls of the auditory canal and of the distention of vegetable matter, may be an impossibility from the position assumed by the foreign substance.

2. In such cases the state of the hearing is a valuable diagnostic guide; for example:

(*a*) If the existence of great hardnesss of hearing, or absolute deafness, warrants the conclusion that a recent injury to the foot-plate of the stapes has occurred, then the removal of the foreign body by means of exsection of the posterior wall of the bony auditory canal, if removal is impossible in any more conservative manner, becomes a vital indication, since the purulent inflammation almost surely attendant upon the pressure of the foreign body in this place will find its way through the opening in the oval window into the labyrinth, and thence by the aquæductus cochleæ and the porus acusticus internus to the meninges of the brain.

(*b*) If, however, much hearing remains, which would indicate that the foot-plate of the stapes is intact, endeavors may be made, if the foreign substance

is a fruit seed, to extract its watery parts by means of instillations of glycerine, alcohol, and ether. Also forcible injections of water through the Eustachian tube, which often succeed, may be tried, especially if we can still feel that the foreign body is movable by means of a probe.

3. If, in a case of foreign body in the middle ear, whether any hearing is present or not, in addition to purulency of the middle ear, there are local symptoms of inflammation in the neighborhood of the irritant substance, especially in the mastoid, an expectant treatment is no longer advisable (cold, extraction of blood, etc.) as in simple suppurations, but instant opening of the antrum is indicated.

4. The endeavor to remove the foreign body immediately after the operation, which consists in removing the outer mastoid wall and then the posterior osseous wall of the auditory canal as far as the drum cavity, by means of hammer and chisel, is justifiable; and in the case of children at least, in the early years of life, nothing more than precaution against rapidly developed brain inflammation.

Syphilitic Ulcer of the External Auditory Canal.

Dr. Skjelderup, of Christiania (*Archiv für Ohrenheilkunde*, Bd. 27, Aug. 1888), gives the history of the case of an elderly man who presented in the left auditory canal a linear ulcer, the size of a pea, with infiltrated edges, dirty, pus-covered base, which the patient said had come from his picking a small furuncle in the ear. There was no pain in the ulcer, but a little smarting. After the use of mercurial ointment the ulcer enlarged. Some lymphatic glands beneath the auricle became swollen, but no other glands were then affected. The fauces were healthy, and all specific infection was denied by the patient. Under further use of mercurial treatment, with applications of nitrate of silver, the ulcer steadily enlarged. The diagnosis was: Rodent ulcer; and the treatment consisted now in excision of the ulcer and the swollen glands; healing by first intention. Three months later there appeared faucial and nasal syphilis, with characteristic ulceration on the posterior pharyngeal wall. Large doses of iodide of potash produced a cure without any relapse.

The writer recommends the use of iodide of potassium in cases of ulceration of doubtful origin.

Suppuration of the Middle Ear with Facial Paralysis and Elimination of the Cochlea.

Dr. H. Ferrer (*Sacramento Med. Times*, April, 1888) gives an account of the case of a man, twenty-four years old, who had suffered for many years with an otorrhœa in his left ear, when he suddenly experienced a painful swelling in the mastoid, with attacks of vertigo, becoming more frequent, and facial paralysis on the left side. Trephining the mastoid to the depth of two and a half centimetres showed complete eburnation of the bone. Later a fistula formed at the upper part of the auditory canal, and gave issue to a small piece of bone in which it was easy to recognize the course of the facial nerve. Some months later there was removed from the same fistula the entire cochlea. After this the discharge soon ceased.

Otitis Media Hæmorrhagica in a Child.

Dr. Thomas Barr (*British Med. Journal*, April 28, 1888) gives an account of the occurrence of this unusual disease in a girl nine and a half years old. She was attacked with malaria, insomnia, etc., and in the course of a week there appeared an abundant suppuration from the left ear, above which at the same time there appeared an inflammatory swelling. Two days later there appeared in the middle of the night a considerable hemorrhage from the ear. A physician then tamponed the external auditory canal with iodoform on cotton, but as this caused a reflex cough, it was soon removed. The hemorrhage occurred twice during the same day, and once on the next, but did not reappear. The suppuration, however, continued for some days longer. There was found an irregular perforation in the lower part of the membrana tympani which cicatrized in a few days.

Influence of Pilocarpine upon the Mucous Membrane of the Tympanum.

Dr. W. Kosegarten, of Kiel, gives a most interesting account of his experiments with the above-named drug (*Archives of Otology*, vol. xvii. No. 2, June, 1888). Politzer was the first to recommend this agent in the treatment of recent cases of exudative disease of the labyrinth, and in syphilis of the same, where the process had not yet become chronic. But he limited its application to recent affections, and discontinued its employment in the course of a week if no good result ensued in that time. Kosegarten undertakes no case which cannot submit to daily treatment for six weeks. He injects hypodermatically one centigramme, and has watched the effect on the mucous tissue of the tympanic cavity. A distinct redness is seen to come on thirteen minutes after the injection, in some cases, and remain visible for forty minutes; then it fades away rapidly. In some cases the redness comes on more slowly. It even appears that the secretion in the middle ear is increased during the effect of the pilocarpine. It is held that this remedy acts both upon the internal and middle ear disease. "By means of returning hyperæmia, which may even cause exudation, there ensues pliability of the sclerosed tissues and moistening and softening of adhesions, and in this way the unyielding conducting apparatus again becomes more capable of vibrating; when exudations had become deposited their absorption was brought about." Politzer's want of success is attributed by Kosegarten to too short a trial of the remedy, which can be efficient only when its action is long continued.

Ménière's Disease (Aural Vertigo).

Lucæ, of Berlin (*Encyclopædie der gesammten Heilkunde*), thus marks out the course of treatment he has found valuable in these cases: At the beginning, especially in robust subjects, local bloodletting from the mastoid region by means of Heurteloup's artificial leech, then prolonged rest in bed, seems to him an indispensable condition in the proper treatment. As internal medications, he employs chiefly subcutaneous injections of pilocarpine: ergot also may be tried. Iodide of potash is useless. Sulphate of quinine is not advisable, because it is liable to destroy hearing if given in large doses. It should not,

therefore, be used except as a last resort, and with full warning of its danger being given to the patient.—*Annales des Maladies de l'oreille, etc.*, Aug. 1888.

A Case of Abscess in the Temporo-frontal Lobe of the Brain produced by Ear Disease, in which Trephining and Emptying the Abscess produced entire Cure.

Dr. Thomas Barr, of Glasgow (*Archives of Otology*, vol. xviii., and *Archiv f. Ohrenh.*, Bd. 27, Aug. 1888), gives the following account of the above-named disease: The patient, a boy, nine years old, previously strong and healthy, had suffered for one year with a scanty, offensive discharge from the right ear. Three months previous to the time Dr. Barr observed him, the patient had suffered with pain in the affected ear and the corresponding side of the face, attended with fever, and followed by vomiting and great somnolence. Several days later a chill was observed. At the time of the first examination by Dr. Barr, the pain in the ear and head continued, as did also the somnolence. There had been in all six chills; the boy was greatly prostrated, and had a short cough, with purulent, offensive expectoration. The examination of the ear revealed a perforation in the upper part of the membrana tympani (probably in the flaccid membrane) from which a little purulent discharge escaped. All signs of an acute process, or of retention of pus in the ear, were wanting, and the mastoid process was only slightly sensitive to very hard pressure, and externally it was normal in appearance. As however, after a short pause, pain in the ear and head set in again, and the somnolence became very marked, and a slight chill was experienced, Dr. Barr opened the mastoid and removed a little purulent and cheesy matter.

The condition of the patient was not in the least improved by this operation. The pains in the head, especially in the forehead, continued, and percussion of the right temporal region was very painful; the somnolence was still marked. A slight ptosis of the right eye, and a trace of paralysis of the right side of the face, became apparent; the veins of the right half of the head were congested, the right sterno-cleido-mastoid was stiff, and pressure behind the origin of the sterno-cleido-mastoid muscle, where the vein comes out of the posterior condyloid foramen, caused great pain. The general condition of the patient was very poor, irregular muscular trembling was apparent throughout the entire body, pulse slow, weak, and intermittent. From the right ear there suddenly came a copious discharge of pus, very offensive in odor, which seemed to denote that a communication had been formed between the abscess in the brain and the organ of hearing. The chances for a good result from an operative opening of the abscess supposed to be in the temporal bone were in this case the most unfavorable; still, as herein lay the only possibility of saving the patient, the operation was undertaken by Dr. Macewen at Dr. Barr's request.

After complete disinfection of the ear and the region of the proposed operation, a disk half an inch in diameter was removed from the squamous portion of the temporal bone at a point one and a half inches behind the centre of the auditory canal. The slightly congested dura was incised, and into the yellowish-red protruding brain substance, covered with the congested pia, an aspirator needle was inserted in a direction forward, inward, and downward.

At a depth of three-quarters of an inch foul gas was found, and soon thereafter about two drachms of yellow, offensive pus were evacuated. The latter continued to escape when more of the necrotic brain substance was removed. In order to procure a thorough cleansing of the abscess a counter-opening was made at the lower part of the skull, directly above the bony boundary of the auditory canal, in the line of the petro-squamous suture. Through this opening, and also in the reverse direction, the abscess cavity was washed out by means of a solution of boric acid, and then drainage tubes, made of chicken bone, were inserted. The region of the operation was then dusted with boric acid, and bandaged with corrosive sublimate cotton. This dressing was removed, on the average, once a week, and the drainage tube was shortened in proportion to the granulation of the tissue, and finally omitted, the upper one in five weeks. The result of the operation was most satisfactory. In the first week the pulse became quieter, the face became fuller, the ptosis disappeared, the psychical condition improved, and the weight of the body increased. Granulation of the wounds occurred promptly; the lower closed completely, the upper was protected by a piece of rubber bandage until the osseous closure occurred. The otorrhœa ceased under the boric acid treatment, leaving a dry perforation in the membrana tympani.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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Spasmodic Choreic Cough Cured with Spray of Methyl Chloride.

Dr. J. Garel (*Annales des Mal. de l'oreille*, August, 1888) reports the case of a girl, thirteen and a half years of age, who had had an almost continuous choreic cough for two months. Topical applications with cocaine in ten per cent. solution, only provoked fresh spasms and increased their intensity. A strong spray of methyl chloride was played upon the back of the neck and upper part of the spine, as well as upon the anterior portion of the neck. During the process, an assistant made energetic frictions over the part to prevent too deep an action on the tissues. Amelioration began the same night, and gradually increased during two weeks, by which time the cure had become permanent.

Laryngeal Chorea.

Prof. Nicola Tamburrini takes occasion (*Archiv Italiani di Laringologia*, Luglio, 1888), in reporting a case, to question the accuracy of the opinion which refers this affection to motor incoördination of central origin, and to range himself with those who regard it as a sensory lesion producing a peripheral spasm and due to local hyperæmia and hyperæsthesia.

Pseudo-polypus Laryngeal Phthisis.

Drs. A. Gougenheim and P. Tissier (*Annales des Mal. de l'oreille, etc.*, July, 1888) describes a class of polypoid vegetations observed in young subjects, especially in the first stages of tuberculosis, and independently of any other lesion in the larynx. They report one case in which tuberculous dendritic growths were so extensive as to demand tracheotomy, and although recurrences had been frequent, there was no evidence of pulmonary lesion as late as ten years thereafter when the canula was definitively removed from the trachea. These tumors are most frequent at or near the petiolus of the epiglottis, the mesoarytenoid region, and the subglottic space. They are distinct from the well-known similar formations which occur in connection with tuberculous infiltrations and ulcerations.

Acute Stenosis of Larynx; Tracheotomy; Death from Shock.

Dr. A. Trifiletti reports (*Archiv Italiani di Laringologia*, Luglio, 1888) a case of œdema of the epiglottis, with stridor and convulsive movements of the larynx and trachea, in a boy eight and a half years old, with broncho-pulmonary fever. Tracheotomy was performed, but the patient died some twenty-eight or thirty hours afterward, without any apparent cause other than shock.

Syphilis of the Larynx.

Dr. J. Garel records (*Annales des Maladies de l'oreille, et du Larynx, etc.*, June, 1888) an interesting case of specific perichondritis of the left arytenoid cartilage, the symptoms of which simulated an acute œdema of the larynx; and which was complicated with a sessile fibromyoma, the size of a large pea, situated at the anterior commissure of the glottis.

Dr. Charles Mauriac (*Arch. gén. de Méd.*, February, March, June, 1888) has contributed a most valuable and quite exhaustive article on tertiary syphilis of the larynx. It is replete with references and with details of manifestations which are unusual. Considerable attention is given to the laryngoplegias of syphilis and to the means of discriminating them from similar lesions non-specific in orgin.

Gunshot Wound of Larynx.

Dr. Hiéro Stoessel reports (*Annales des Maladies de l'oreille, et du Larynx, etc.*, June, 1888) the case of a man whose larynx was accidentally penetrated October 6, 1887, by a paper obturator from an old gun at five paces' distance. The missile was immediately expelled by coughing; and then some fragments of cartilage were extracted from the wound. A canula was inserted through the wound. An attempt to remove the canula two days afterward was followed by intense dyspnœa and cyanosis, and it had to be replaced. A fresh fragment of cartilage was removed at the same time. Respiration becoming seriously embarrassed, he entered the clinical service of Prof. Weinlechner, of Vienna. He was aphonic. Both phases of respiration were slightly stridulous. To the left of the median line there was a wound in the thyroid cartilage, surrounded with excessive granulations. The glottis was irregu-

larly quadrilateral, and a whitish prominence projected into the larynx between the slightly tumefied arytenoid cartilages. Another prominence, the size of a small haricot bean, was located at the anterior angle at the side of the epiglottis. From the base of this second prominence, a reddish-gray membrane stretched to the middle of the right vocal cord.

Tuberculous Tumors of the Larynx.

Dr. Artur Hennig, of Königsberg (*Berliner klin. Woch.*, July 9, 1888), describes and illustrates a rare example of multiple supraglottic tuberculous tumors of the larynx in a man fifty-two years of age, who had been hoarse for twelve years. One, the size of a filbert, occupied the left ventricular band; one, the size of a pea, the right ventricular band. These were smooth, ovoidal and sessile. A third neoplasm, which was dendritic and the size of a lentil, occupied the posterior surface of the left arytenoid (supra-arytenoid?) cartilage. In all other respects the laryngoscopic appearances were normal; there being no ulcerative, infiltrative or anæmic evidence of tuberculosis. These tumors were removed with the thermocautery after splitting the larynx; precautionary tracheotomy having been performed as the preliminary feature. The diagnosis of the nature of the tumors was based on microscopic examination by Professor Baumgarten, after their excision. Severe fever set in suddenly five weeks after the operation; unconsciousness followed, and the patient died in forty-eight hours.

Laryngectomy.

Dr. William Gardner, of Melbourne, reports (*The Medical Press*, July 25, 1888) a case of total extirpation of the larynx on October 2, 1887, for epithelioma in a male subject, sixty-two years of age, who, on December 25th, was able to go about the streets without pain or cough and with increase in weight. The report is probably a preliminary one, inasmuch as the only reference to the extent of the disease is, that "laryngoscopic examination showed a small ulcer below the left vocal cord."

Ulcerative Lesions of Soft Palate and Larynx in Enteric Fever.

Dr. St. v. Vamopy (*Wien. klin. Woch.*, August 2 and 16, 1888) describes two interesting cases of ulceration of the soft palate, one of which is illustrated, and discusses the subject in an excellent summary. He concludes that the ulcerative throat lesions in enteric fever are due to the action of the special virus destructive to the glands of the throat, and the same as to the analogous glands in the intestine, and that these ulcers are not, as has been thought, due to pressure and position, or what are known as ulcers from decubitus.

On the Anatomy of the Epiglottis.

Mr. Mayo Collier (*Journ. of Lar. et Rhin.*, June, 1888) finds that the anatomical descriptions in the books are in several points incorrect. He denies that the glosso-epiglottic ligaments have any connection with the tongue, except by continuity of mucous membrane. He denies the existence of a thyrohyoid membrane. All that he finds is a thin fascia lining the inferior aspect of the thyrohyoid muscle and covering over a quantity of areolar

tissue and fat. This fascia is coextensive with and intimately attached to the hyoid origin of the thyrohyoid muscle, a well-marked interval existing between the two portions on the opposite side.

A New Diagnostic Feature in Paralysis of the Dilators of the Glottis.

In an article on the pathology of dilatation of the glottis (*Deutsch. med. Wochenschr.*, June 28th, *et seq.*) Dr. Ed. Aronsohn, of Berlin, directs attention to the state of the pulse in cases of paralyses of the posterior crico-arytenoid muscles. He finds that the pulse is accelerated in all cases due to disease in the nerve supply. He believes that it may be taken for granted that in those cases in which there is no acceleration of the pulse there is an organic disease behind the point at which the recurrent nerve leaves the pneumogastric, a myopathic paralysis of the posterior crico-arytenoid muscles or an adductor contracture. The acceleration of the pulse is either the expression of irritation of the sympathetic nerve, or the evidence of paralysis of the cardiac branches of the pneumogastric nerve. These cardiac branches come from the inner and motor root of the spinal accessory nerve, just as the inferior laryngeal nerve does; and, therefore, when the cardiac branches of the accessory nerve are paralyzed, simultaneous disturbances of innervation of the musculature of the glottis must also be attributed to paralysis of the laryngeal branches of the same nerve.

Treatment of Carcinomatous Stricture of the Œsophagus.

M. A. F. Plicque presents (*Annales de Mal. de l'oreille et du Larynx*, August, 1888) a critical review of the methods of treatment.

I. *Dilatation by catheterization* does not give durable results, for as soon as sounds sufficiently large are passed, spasm or inflammation ensues, which prevents further introduction of instruments, and counteracts all the benefits painfully acquired. Sometimes it excites absolute impossibility to swallow where glutition of liquids had been practicable. Furthermore, cases are only too numerous in which, when the tissues are soft, the catheter penetrates the aorta, the bronchi, or the mediastinum. Finally, the favorable results occasionally attained are usually due to the concurrence of exceptional conditions.

II. *Gastrostomy.* A patient who can swallow liquids has nothing to gain from gastrostomy; and if the operation is performed when aphagia is complete, death cannot be postponed beyond a few days. The operation has but a moral palliative value. Of 145 gastrostomies collated by Lagrange, the mean duration of life was but 19 days. In 36 only, was life prolonged more than a month; and in 24 out of 25 of these, of which the details are given, the operation had been performed before the state of aphagia had been reached. Plicque concludes with Lagrange, that gastrostomy is useless if performed prematurely, and too dangerous when performed late.

III. *The permanent retention of catheters in the œsophagus* is the most desirable method of treatment, although it is yet in doubt whether short tubes are preferable to the longer ones. One great objection, however, is the insecurity of the silk strings attached to facilitate extraction; but it is to be hoped that this difficulty will soon be overcome by some mechanical contrivance.

OBSTETRICS.

UNDER THE CHARGE OF

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Obstetric Practice at the Boston Lying-in Hospital.

Boardman (*Boston Medical and Surgical Journal*, No. 9, 1888) reports three months' practice in this hospital, a total of one hundred and twelve cases. Strict antisepsis is practised, and no septic death occurred. But one child died after birth. The complications most frequently met with were successfully treated; a case of multiple fibroids, and three cases requiring craniotomy were especially interesting. In addition to means usually employed, an intra-uterine douche of hot vinegar was found efficient as a hæmostatic.

The Practical Results of Modern Obstetrics.

Fischel (*Centralblatt für Gynäkologie*, Nos. 32 and 33, 1888) reviews the diminution in puerperal mortality resulting from antisepsis, and urges the importance of a better understanding of its technique by practitioners.

The mortality rates of the large maternities of Austria, Germany, Russia, and Bohemia show a diminution of, in round numbers, 50 per cent. from sepsis; the death-rate from this cause having been 1.3 per cent. from 1874 to 1884, and since 1884, 0.72 per cent. to 0.42 per cent. An estimate of the mortality in private practice on the Continent is difficult, because midwives commonly deliver normal cases, and only serious complications are brought to the physician. This mortality is probably much greater than that of the maternities.

Fischel urges that physicians be thoroughly drilled in *innocuous* antisepsis; and that maternities be so managed as to give the fullest advantages for practical study. That this may be safely done with proper discipline is illustrated by the fact that during the winter of 1886–1887 no case of septic infection occurred in Fischel's wards, although the best possible opportunities are given to students to examine cases.

[The superiority of asepsis obtained by the proper use of antiseptics, over antiseptics applied frequently to the patient, as formerly practised, is very suggestive. This usage prevails in the best American maternities, whose septic death-rate is less than one per cent. Fischel's suggestions regarding the improvement of practitioners and students are very pertinent to America. Public sentiment should be educated to permit proper clinical instruction, and the education of the average practitioner should include a practical knowledge of antiseptics and their proper use.—Ed.]

Obstetric Practice at Marburg.

Ahlfeld (*Deutsche med. Wochenschrift*, Nos. 23, 24, 25, 27 and 28, 1888) reports the work in his clinic for a year; the following are points worthy of note:

In 308 labors the forceps were used but 3 times. The "birth stool," two chairs placed side by side, in contact posteriorly, but separated anteriorly, was used; the patient being placed over the triangular opening. As soon as the head is born, she is placed in bed. This birth stool is used in cases in which forceps are ordinarily employed. There were numerous cases of contracted pelvis. Cephalic version was done three times; podalic, three; combined version twice.

Créde's method of placental expression was employed three times, manual removal of the placenta once. The patient usually lay undisturbed one hour and a half after the child was born; the bladder was emptied and gentle pressure from above sufficed to expel the placenta; post-partum hemorrhage was very rare. None of the mothers confined died; of 308, 226 had no elevation of temperature.

Ahlfeld cleanses gently the child's eyes, nostrils, and mouth as soon as the head is born. If the child does not breathe, it is placed in a warm bath. If no improvement follows in about ten minutes, the child is wrapped in hot flannel and the trachea catheterized to remove mucus; air is not blown into the lungs. Gentle friction, especially over the chest, is of the greatest value. Ahlfeld does not believe that more forcible measures are admissible; his experience with swinging the child by the shoulders and blowing air into the lungs has caused him to reject them.

Obstetric Methods in Prague.

Morton (*New York Medical Journal*, No. 26, 1888) describes the methods of the clinic at Prague, as instituted by Professor Breisky, now in Vienna.

Bichloride of mercury is the antiseptic most used; carbolic acid is used for instruments and for intrauterine injections. [The use of bichloride solution for intrauterine injections resulted in a fatal intoxication, after which it was abandoned.—Ed.] Instruments are sterilized in flame, when possible. Catheters are filled with lead in the space between the tip and the eye to prevent septic accumulation.

Rigid antisepsis of practitioner and patient is enforced. Vaginal douches are not given after labor in normal cases. Iodoform is used in the uterus and vagina.

The uterus is not irrigated unless operated upon, or evidence of infection exists. The breasts are uniformly treated before and after labor with boric acid, 4 per cent. solution.

Nitrate of silver, 2 per cent., is used as a prophylactic against ophthalmia. Diarrhœa and indigestion in infants are treated by washing out the stomach with a small catheter, rubber tube and funnel, as advised by Epstein. The child is given white of egg and water for twenty-four hours afterward. Instruction is given in the hospital; septic mortality is 2 per 1000.

[The wards and their arrangement are excellent, and the uniform courtesy of Dr. Fleischmann (in charge) renders the clinic a place of interest and pleasure to foreigners.—Ed.]

The Use of Bichloride of Mercury in Obstetrics.

Blanc (*Lyon Médicale*, No. 34, 1888) concludes, from numerous clinical observations, that solutions of 1 : 4000 and 1 : 5000 should be generally used.

If 1 : 2000 is given by intra-uterine injection, it should be followed by the injection of carbolic acid two or three per cent. The danger of absorption, from the anatomical condition of the parts, is undoubted. Contra-indications to the use of the bichloride are anæmia and disease of the kidneys.

Obstetric Antisepsis for Nurses.

Credé and Winckel, in the *Text-book for Midwives*, published by the Government of Saxony, advise the following rules for nurses: They should carry with them four ounces of dissolved carbolic acid, nail brushes, soap, sterilized cotton and carbolized vaseline two per cent. The hands and forearms should be cleansed with soap, warm water, nail brush, and five per cent. or two per cent. warm carbolic solution. The external genitals of the patient are cleansed with soap, water, and two per cent. carbolic solution; for vaginal douches, fissures in the vagina and fissured nipples two per cent. carbolic acid is used. The strictest prohibitions are enjoined against bringing soiled clothes in contact with the patient.

If sepsis occurs, the midwife who delivered the case should immediately transfer it to another nurse, under a physician's orders; she herself must thoroughly cleanse her body, clothing, and instruments, and deliver no other case for at least five days. Vaginal examinations must be as infrequent as possible, and she must report to the sanitary authorities every two days for a week, that they may know that she infects no other patient. Should other cases arise in her practice within thirty days, she must be quarantined for two weeks.—*Deutsche med. Wochenschrift*, No. 32., 1888.

Interesting Cases of Twin Pregnancy.

Rivière (*Archives de Tocologie*, No. 7, 1888) reports a case of twin pregnancy in which one fœtus and placenta occupied the upper half, and the other fœtus and placenta the lower half of the uterus. A membranous partition separated the two. The placenta of the lower ovum was attached as low as the inferior segment, but as the head was very small, dilatation sufficient to produce placental hemorrhage did not occur.

Two cases are also described in which one fœtus was killed by an injury to the mother, while the other survived. A case of twin pregnancy with obstinate vomiting is also reported, in which labor was induced. Rivière believes that over-distention of the uterus producing exaggerated nervous reflexes is the cause of obstinate vomiting.

Compressing Forceps.

At the last meeting of the British Medical Association Dr. More Madden, in the "Address upon Obstetrics," expressed his belief in the forceps as preferable to destructive instruments, and superseding them by reason of its compressing power.

He had devised a short forceps which allowed the fœtal scalp to protrude freely through its fenestræ when compression is made; and also long forceps armed with a compressing rod and screw similar to those used in a cranioclast. In addition, the latter forceps is supplied with a pair of detachable traction rods, allowing the exercise of traction at any angle.—*British Medical Journal*, August 18, 1888.

Fracture of the Symphysis Pubis during Labor.

Faux (*Bulletin de la Société Obstétricale de Paris*, No. 8, 1888) reports the case of a primipara, aged twenty-five, to whom he was summoned during her difficult labor, the presentation being right occipito-posterior. The pelvis was slightly contracted in its antero-posterior diameter.

Tarnier's forceps were applied, and traction made for intervals during an hour. As the head reached the perineum, crepitus was distinctly perceived by the operator. Tarnier's forceps slipping, Pajot's were substituted, and labor terminated. At the moment when the head was born the crepitus was again perceived. The head of the child was of normal size, and showed no marks of violence; the child was dead, Faux thought from the long duration of labor (forty-eight hours). The mother had moderate post-partum hemorrhage. On catheterizing her the fracture was plainly felt, and the subpubic tissues were bruised and œdematous. Faux had no opportunity to examine the patient's pelvis before labor. No especial malformation was evident. She made a speedy recovery.

Cæsarean Section at the Present Time.

Among the most interesting recent publications upon this subject is that of Leopold (*Der Kaiserschnitt und Seine Stellung zur Künstlichen Frühgeburt Wendung und Perforation bei Engem Becken*, Stuttgart, Enke, 1888). The section upon induced labor is written by Korn, who analyzes 45 cases; 35 of which recovered without a rise of temperature; 9 had slight febrile disturbance; 1 died of sepsis. In symmetrically contracted pelves with conjugata vera of three inches, and pelves whose conjugata vera only is contracted (to two and three-quarters inches), induction of labor is indicated, from the thirty-second to thirty-sixth week.

Löhmann contributes a chapter upon version. 107 cases are reported; the mortality from sepsis is nil; the indications are a fœtus of moderate size, at term, in a pelvis whose dimensions are the same as those mentioned by Korn.

Präger reports 71 craniotomies, with maternal mortality, from sepsis, nil. When the time for the induction of labor has passed, and the indications for other methods are wanting, craniotomy gives most excellent results.

Leopold writes upon Cæsarean section. He thinks the time has not yet come for abandoning craniotomy upon the living child; in a portion of the cases it may be rejected; in the greater number it cannot be discarded.

The indications for Cæsarean section are as follows: When nature fails to deliver a living child whose development is so great that version and forceps cannot be employed; and the consent of friends and relatives can be obtained.

The conditions essential for success are: 1. The mother must be in good condition as regards strength, and not advanced in labor; early rupture of the membranes is not an advantage. 2. She must not be already infected by frequent vaginal examinations and efforts at delivery which lacerate the tissues. 3. The heart-sounds of the child must be normal in strength and frequency. 4. Operator and assistants must understand antisepsis and the plan of operation.

The maternal mortality after Cæsarean section during four years at Dresden has been 8.6 per cent., 4.3 per cent. from sepsis. Eighty-seven per cent. of

the children so delivered were saved. An improved method of suturing the uterus is needed, so that conception afterward shall not be rendered more difficult or dangerous.

The indications for Porro's operation are: 1. Infection of the body of the uterus. 2. Stenosis of the cervix and vagina by tumors not connected with the uterus. 3. In cases of myomata in the body of the uterus. 4. In pregnancy in the occluded half of a uterus bicornis. 5. In rupture of the uterus, when the child lives, in a contracted pelvis. 6. In retained placenta, with sepsis, other treatment failing. 7. In osteomalacia.—*Münchener med. Wochenschrift*, No. 30, 1888.

Successful Cæsarean Section for an Unusually Contracted Pelvis.

Delassus (*Annales de Gynécologie*, September 1888) reports the case of a woman aged thirty-nine, who had been healthy except for a remarkable deformity, upon whom he performed Cæsarean section at term. The deformity was found chiefly in the superior strait; the left half of the pelvis was abnormally roomy, the other diameters were less altered than the appearance of deformity indicated. Elaborate measurements were made; the antero-posterior diameter of the pelvic inlet was two and three-quarters inches. A marked spinal curvature existed; the general appearance of the patient being that of a person in whom sitting had forced the sacrum and the pelvis downward and forward. Rachitis was not present, and the most reasonable explanation afforded by the history and data of the case was that in early life the patient had suffered from myelitis in the lumbar cord, which had for a long time necessitated the sitting posture during the period of bony growth. The weight of the vertebral column had driven the sacrum forward, causing it also to rotate partially upon its axis.

Cæsarean section was made after the modern method. The interrupted catgut suture was used. The uterine incision was prolonged downward further than usual, resulting in a minute uterine fistula, which was afterward healed by using a drainage tube. Ergotin was given hypodermatically before the operation. Aside from a rapid pulse (120) and constipation, the recovery was uneventful.

Intra-ligamentous Tubal Pregnancy; Laparotomy; Recovery of Mother and Child.

Eastman reports (*American Journal of Obstetrics*, September, 1888) the case of a patient whose abdomen contained a tumor extending from the pubes to the vicinity of the liver. The uterus was normal; the breasts not enlarged; no fœtal heart was heard. Menstruation had ceased; paroxysms of intense pain, and increasing abdominal enlargement were present.

Abdominal section revealed tubal pregnancy in the right broad ligament. The sac was opened, and the child extracted without detaching the placenta. The tube was then ligated and removed with the placenta in mass. A clamp was placed upon the neck of the sac, and the pedicle so formed was quilted with silk (cobbler's stitch). The peritoneal cavity was washed out with hot water three times, and a glass drainage tube was employed. Mother and child made a speedy, uninterrupted recovery. The growth and development of

the child have proceeded normally. It was between the seventh and eighth month when delivered.

Tubo-abdominal Pregnancy; Laparotomy; Recovery.

Meyer (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 15, Heft 1) reports the case of a primigravida aged twenty-seven, who presented the usual signs of pregnancy. During several coitions she felt abdominal pain, from which she recovered; these pains became more severe, and were finally followed by collapse. In this condition, when examined by Meyer, a boggy tumor was found at the left of the uterus, and a diagnosis of extra-uterine pregnancy, with rupture of the sac, was made. The patient was removed to a hospital for further treatment.

For the following three or four weeks her general condition improved. Examination under chloroform confirmed the diagnosis, and led to the belief that the fœtus was developing, in spite of the rupture of the sac; laparotomy was accordingly done. Free hemorrhage followed; the fœtus was rapidly extracted; the placental tissue formed a tumor as large as a man's fist, connected with the uterus by a pedicle two inches wide and four inches long, composed chiefly of the thickened Fallopian tube. The ovary was about three and a half inches from the placenta, toward the median line. The pedicle was ligated with silk just on the inner side of the ovary and severed, and the placenta removed. A pseudo-membrane had been formed by the hæmatocele, which bled profusely. Irrigation with two and a half quarts three per cent. boric acid solution at a temperature of 112° F. failed to check the hemorrhage; a sack of iodoform gauze was introduced which was evenly stuffed with four strips of iodoform gauze, thus equally tamponing the cavity; the upper two-thirds of the wound was closed, the gauze strips and silk ligature used in making the sack were brought out at the lower angle of the wound, and a heavy antiseptic dressing applied.

The wound was dressed three days after operation, and the gauze removed; the sack was removed two days later. An attempt to close the wound was followed by retention of fluid, which necessitated a drainage tube for a few days.

The patient recovered perfectly. The fœtus was nineteen weeks old, and deformed, but was not macerated. Examination of the tube revealed follicular salpingitis with partial occlusion at the abdominal extremity, where the ovum lodged; this Meyer thinks may have been secondary, not primary, to the lodgement of the ovum. The patient had had dysmenorrhœa, which ceased after the operation. Meyer regards the case as probably primary tubo-abdominal pregnancy. [For Breisky's interesting and somewhat similar case, the reader is referred to the Journal for February, 1888, p. 209.—Ed.]

The Development of the Placenta.

Frommel, at the recent meeting of the German Society for Gynecology (*Münchener med. Wochenschrift*, No. 25, 1888), stated the results of experimental studies in the development of the placenta as follows:

The ovum forms, when lodged in the uterus, a crypt in the uterine wall; the contents of this crypt or pocket become the placenta. The villi of the

chorion are formed in the proliferation of the decidua. A ring of vessels forms beneath the blastoderm of the ovum which are derived from an artery. The glands of the decidua disappear as the placenta forms, and take no part in forming the placenta; the ovum puts forth vascular processes of epithelium. The allantois is formed upon the endochorion and sends loops of vessels into the villi of the chorion; the endochorion forms from the amnion. From the vessels just described bloodvessels pass through the decidua deep into the uterine wall. Maternal and fœtal blood come into such close contact that both communicate freely.

LEOPOLD and WIENER supported the view that the villi of the chorion are lodged within the bloodvessels.

AN UNUSUAL FORM OF PLACENTAL RETENTION.

LANGE (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 15, Heft 1), in 638 cases of operative obstetrics, has encountered retention of the placenta 21 times. Two of these cases were caused by abnormally low tension in the abdomen following rapid labor. Credé's method fails in these cases. The placenta is found lying in the lower uterine segment, and is readily removed by the hand; an audible rush of air accompanies the delivery. The accumulation of blood usually found behind the placenta is wanting. Lange believes that the placenta is separated by the last uterine contraction which expels the child; its expulsion is accomplished by the abdominal muscles and the weight of the blood-clot formed behind it. When the abdominal muscles are paretic with negative intra-abdominal tension and the blood-clot is lacking, this form of placental retention occurs. Retention of urine may be similarly caused (Schwarz).

RELIABLE SIGNS OF PARTURITION REMAINING AFTER RECOVERY.

RODE (*Nordiskt medicinskt. Arkiv.*, Band 20, No. 6, 1888) considers a dilated, somewhat gaping vulva; scars of varying length in the vagina; and alterations in the shape and structure of the uterus reliable evidence, medico-legal if needed, of previous parturition.

In women who have not borne children the external os uteri may be round or oval. In parous women it is a transverse slit, whose border is fissured. With parous women the distance between the external and internal os uteri is from nine-tenths to three-quarters of an inch; in multiparous this measurement is proportional to the length of the corpus uteri.

But little reliance can be placed upon the breasts; scars in the areola about the nipple are to be noted.

THE RELATION BETWEEN PUERPERAL PSYCHOSES AND SEPTIC INFECTION.

HANSEN (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 15, Heft 1) has examined 49 cases of psychic disturbance occurring during the puerperium; in 42 of them he found septic infection, in varying degrees, present. In 40 of these cases the mental disturbance was that of hallucinations; in the remaining 2 mania and hallucinations were observed. Of the 7 remaining cases: 1 was acute tuberculosis; 4 had been epileptic or eclamptic; 1 had hallucinations which varied greatly in character; 1 had melancholia.

Hansen concludes that the majority of cases of puerperal psychoses are caused by septic infection or eclampsia; when in the early weeks of the puerperal period a psychosis characterized by acute hallucinations develops, without the presence of any other infection and without a previous eclampsia, the diagnosis of puerperal septic infection is justified even in the absence of fever and other symptoms ordinarily present. The mortality in the 49 cases reported was 26.5 per cent.

Inflammation of the Salivary Glands following Labor.

Acker (*American Journal of Obstetrics*, September, 1888) reports the case of a multipara who suffered from inflammation of the salivary glands after normal labor. The attack persisted for seven days; suppuration did not occur. The puerperal period was entirely without other complications. No history of mumps or septic infection was obtainable.

The Treatment of Puerperal Ischuria.

Schatz (*Wiener med. Presse*, No. 26, 1888) advises dilatation of the urethra, to admit the little finger, in these cases. The procedure is not exceedingly painful and gives good results. Mild cases usually yield to catheterization.

Battlehner advises local applications of cocaine, 10 per cent. solution.

Skutsch accustoms his patients, before labor or operations, to urinate while lying in bed; he is thus obliged to have recourse to catheterization very rarely.

Effects of Non-oxygenation of the Maternal Blood upon the Fœtus.

Charpentier and Butte (*Nouvelles Archives d'Obstétrique et de Gynécologie*, No. 8, 1888) report the results of experiments upon pregnant rabbits to determine the effect produced by non-oxygenation of the maternal blood upon the fœtus. By one method the animal was immersed in warm saline solution, the abdomen and uterus opened, and the changes in the placental circulation observed. A second method consisted in ascertaining the condition of the fœtus after the mother had succumbed to the loss of oxygen.

It was found that when the oxygen of the maternal blood is gradually lessened, the fœtus perishes before the mother. When the oxygen of the maternal blood is suddenly and markedly lessened, the mother dies first, the fœtus surviving several minutes. If oxygen in considerable quantities was abstracted, the mother surviving, the fœtus died after some time.

The inhalation of carbonic acid gas, in quantity not sufficient seriously to affect the mother, does not affect the life of the fœtus.

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